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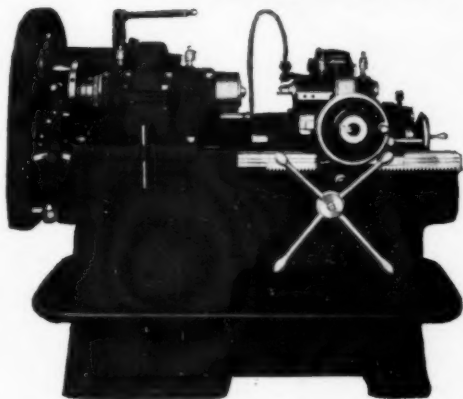
Hitchcock's Machine Tool Blue Book

JANUARY, 1929

TWENTY-FOURTH YEAR

THREADS

For rapid production plus accuracy, either internal or external, we offer this machine



In $3\frac{1}{4}$ " to 9" diameter collet capacity

Ask for Circular No. 36

The Lees • Bradner Company
Cleveland, Ohio

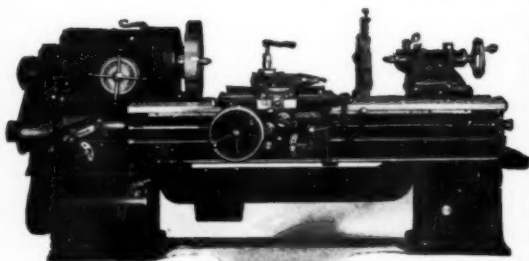
PUBLISHED AT 508 So. DEARBORN ST. CHICAGO

X

3 *big*
reasons

**for MONOTROL
Performance**

**SMOOTH
POWERFUL
EASY TO CONTROL**



MONOTROL Geared Head Lathes are "setting the pace" in many shops for speed with accuracy on production as well as all around dependability.

TIMKEN Bearings—Sykes Herringbone Gears, continuous type—and the exclusive MONOTROL (one spindle control) are contributing factors that make Monotrol Geared Head Lathes an investment that soon pays for itself.

*New Bulletins
describing and
illustrating
MONOTROL
Lathes gladly
sent upon re-
quest. Write
today.*



**The Sidney Machine Tool Co.
SIDNEY, OHIO**

Hitchcock's Machine Tool Blue Book

Controlled
Circulation

25,000
Monthly

JANUARY, 1929

TWENTY-FOURTH YEAR

Simplified Practice

The BLUE BOOK is the leading exponent of simplified practice as applied to advertising, combining a broader service with lower costs.

By means of its 25,000 carefully controlled circulation, it covers the responsible buyers from coast to coast more thoroughly than is possible in any other way.

By specializing on advertising only in compact form, which is highly appreciated by those who buy, its cost to the advertiser is greatly reduced.

Manufacturers of machine tools and shop equipment are invited to investigate simplified practice as applied to advertising.

Full information will be furnished upon request.

Hitchcock Publishing Co.

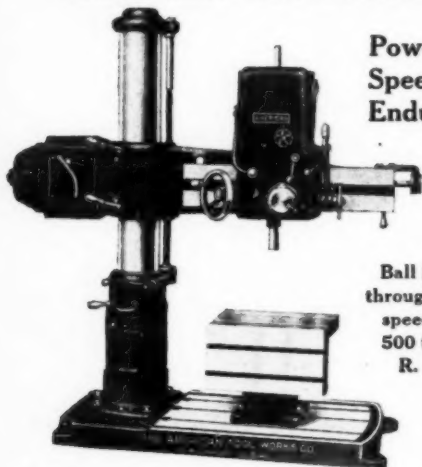
508 S. Dearborn St., Chicago, Ill.

GEORGE O. MCKIBBEN, PRESIDENT

WM. R. WALLIS, VICE-PRESIDENT JOHN D. VAN KAMPEN, SECY.-TREAS.

OWEN B. MILLER, EASTERN REPRESENTATIVE

AMERICAN *Maxi-Speed* Sensitive RADIALS



**Power
Speed
Endurance**

**Ball Bearing
throughout with
speeds from
500 to 2000
R. P. M.**

The Range of a Radial—

The Speed of a Sensitive Drill

The Maxi Speed was specifically designed to handle small holes in such work as crankcases, cylinder blocks, transmission cases, switchboards—all work that is too large to fit under a standard sensitive drill, and too small to be handled efficiently by a geared radial. Made in two models for either belt or motor drive.

Write for descriptive folder

The American Tool Works Company

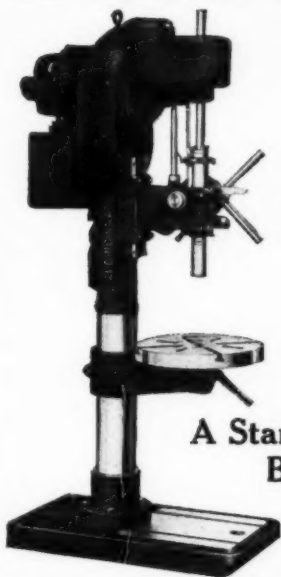
Cincinnati, Ohio, U. S. A.

LATHES

RADIALS

SHAPERS

An Efficient Upright Drill



**Simplified
To Suit
Your Work**

***The DIRECT
DRIVE
Upright***

**A Standard Machine
Built in 21" and
24" sizes**

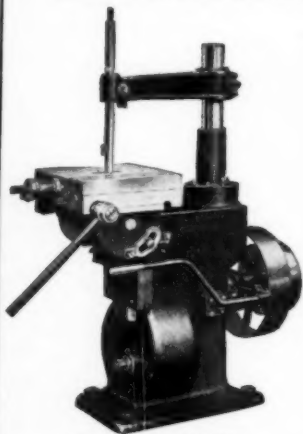
Buy Only the Features You Need

If your work requires speed and feed changes, they are provided. But for high production on one specific job, this machine is stripped of all general purpose complications, which are often paid for and never used.

May We Send Descriptive Literature ?

The Cincinnati Bickford Tool Co.
Oakdale, Cincinnati, Ohio

BAKER KEYSEATERS



Built in
Five Sizes

Designed
for
Miscellaneous
Keyseating
and
Slotting

No. 0 KEYSEATER
Capacity 1" Wide—9" Maximum Stroke

*Exclusive advantages in securing Accuracy and
High Production are:*

1. Draw Stroke Drive.
2. Upper Support for Cutter Bar.
3. Tilting Table (for Taper Keyseats).
4. Simplicity In Operation.

Write for Catalogue

BAKER BROTHERS, INC., Toledo, Ohio

*Builders of Boring, Drilling, Tapping,
Keyseating and Slotting Equipment.*

**Don't let dull Tools
"eat up" your Profits**



**The No. 3
Universal
Cutter and Reamer
Grinding
Machine**

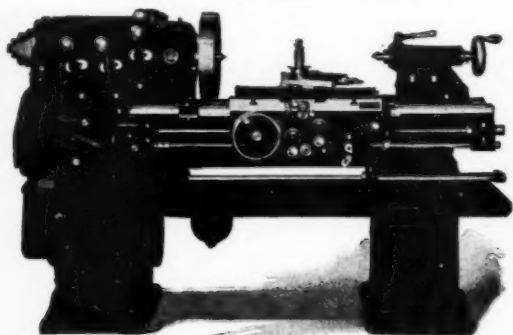
You can sharpen all types of cutters and reamers quickly and accurately with Brown & Sharpe grinding equipment. The No. 2 Cutter Grinding and the No. 3 Universal Cutter and Reamer Grinding Machines are accurate, sturdily built, and easily set up and operated.

Let our representative go over your requirements with you. Or, write to Dept. HB for complete specifications.

Brown & Sharpe Mfg. Co.
Providence, R. I., U. S. A.

The Monarch Ball Bearing Helical Geared Head Lathe

Silent—Smooth—Powerful



Three and one-half teeth of the oil-hardened helical gears are always in mesh.

There is a noiseless, smooth, constant transmission of power, with higher spindle speeds than are possible through any system of spur gearing.

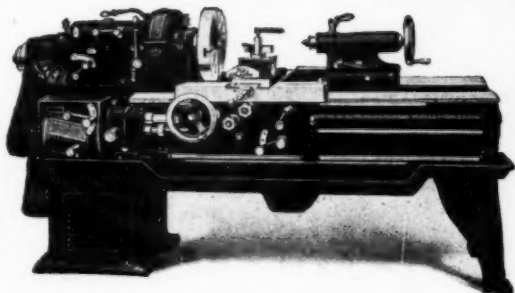
The result is greater production.

Write for complete description of Monarch Helical Geared Head Lathes from 14 to 30 in., with 5 ft. to 30 ft. beds. The folder describes many other modern features, including unusual ease of operation.

The Monarch Machine Tool Co.

Sidney, Ohio, U. S. A.

Cincinnati Lathes



have the motors mounted three ways—either on the head, attached to the rear of cabinet leg or inside of leg as shown in cut. As all of these drives are a self contained unit the lathe with the motor may be removed as a whole any time in the future.

At least 98- $\frac{1}{2}$ % of the power from the motor is delivered to the work being machined. It is the power delivered to the tool that counts.

Specify Cincinnati Lathes and be sure of the quantity also quality of work you produce.

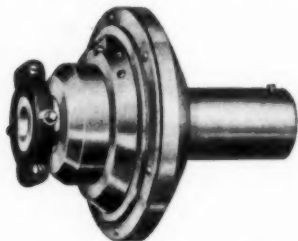
Sizes 16" to 32" either Cone Type or Geared Head belt or motor drive. It costs nothing to get our proposition for comparison.

Specialists Over 20 Years

The Cincinnati Lathe & Tool Co.

Oakley, Cincinnati, Ohio

The Conway Disc Clutch



A—Appearance—Accurate Adjustment

C—Capacity —Centripetal Action

E—Enclosure —Easy Engagement.

H—Hardened forged levers.
" steel contact.

I —Instant release.

G—Gradual pickup.

H—Helped not hindered by centrifugal
force, in idling.

The Conway Clutch Co.

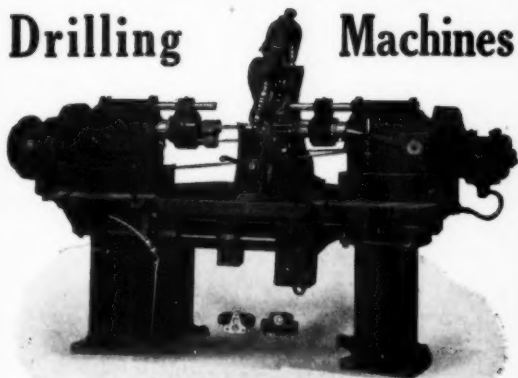
West 6th Street,

Cincinnati, Ohio

"Incorporate dependability in your product"

BRADFORD "UNIMATIC"

Drilling Machines



ABOVE Three-Way Machine drills three $\frac{5}{16}$ " two $\frac{33}{64}$ " and one $\frac{5}{8}$ " holes horizontally, and one $\frac{7}{16}$ " hole at 40 degree angle, simultaneously, in shock absorber body at the rate of 100 pieces per hour.

BRADFORD "Unimatics" are made up with any number of spindles for drilling or tapping, or in combination for any particular job.

*Send Us Your Blue Prints or Samples for
Production Estimates*

The Bradford Machine Tool Co.
657-671 Evans Street, Cincinnati, Ohio

Precision Lathe Builders Since 1840

The DALTON COMBINATION

A Complete Machine Shop

In One Machine



Performs practically all machining operations with speed and accuracy. With a Dalton Combination, you're equipped for all lathe operations, for milling, drilling and tapping.

Occupies one-fifth the space of separate machines and costs considerably less.

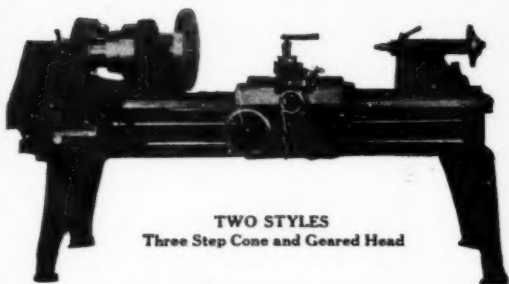
Write for bulletin and prices.

Dalton Tool and Machine Corp'n

8 West 40th St., New York, N. Y.

Manufacturers of

"SMALL LATHES FOR BIG JOBS"



TWO STYLES
Three Step Cone and Geared Head

16"x6' New Design **\$525.00**
Weight 1900 lbs.

18"x8' New Design **\$585.00**
Weight 2100 lbs.

3-step cone, double back gear, quick change gear, graduated compound rest, steady rest, lead screw and feed rod, tool post, centers, countershaft and wrenches, ready to run.

A lathe in the **INEXPENSIVE** class, for your shop equal to, in all respects, lathes of much higher price, having all their features:

Alignment and Precision
Speed in Production
Ease of Operation
Ability on all Work
Low cost of Upkeep
INEXPENSIVE COST to YOU

Made in 16" and 18" swing from 6' to 18' length of bed. Either 3-step cone belt drive or All Geared 9-Speed Drive Head for 2 H. P. Motor.

*Write us for full information and **PRICES***

The Rahn - Larmon Co.
2943 Spring Grove Ave., **CINCINNATI, OHIO**

Planes "Overhead" Away Too!

THE CLEVELAND OPENSIDE PLANNER not only increases production through the speed and accuracy of its cutting, but also helps to greatly reduce the costs of operation. It conserves the operator's energy and saves countless steps as ***all levers are reached from one position.*** It has fewer parts than any other openside planer made—this means greater rigidity—more accurate cutting—fewer shut down—longer life. Write for Illustrated Folder.

The Cleveland Planer Company

Established 1900

3148 Superior Ave.,

Cleveland, Ohio

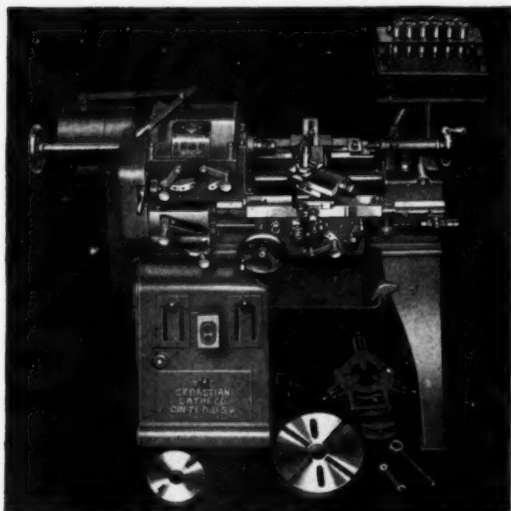
Over 1100 Installations

Send
for
Descriptive
Folder



26 in.
to
72 in.

The Open Side Planer with the Column
Base Cast Integral with Its Closed Top Bed.



11" Gold Seal Heavy Duty Precision Tool Room Lathe

Built for heavy cuts and fast work, yet aligned with an accuracy of .0005". Graduations are provided at every point. The hole through the spindle is $1\frac{5}{16}$ " diameter, and the lathe takes collets up to $\frac{7}{8}$ ". All bearings are oversize. Made in motor, and single pulley belt-driven models.

The Small Lathe you have been looking for

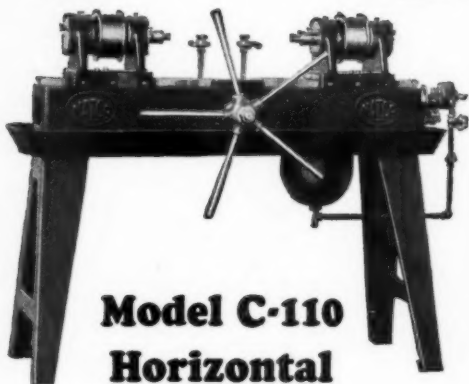
Powered far beyond its apparent size, generously proportioned and equipped with a completeness unequalled in its field, the 11" Gold Seal Heavy Duty Precision Tool Room Lathe offers the manufacturer a long needed addition to his lathe equipment.

The time saving convenience, precision and versatility of this machine will reduce the cost of producing a wide range of parts—much work can be handled with it that formerly had to be done upon a larger machine.

All details sent upon request

THE SEBASTIAN LATHE COMPANY
313 Culvert Street, Cincinnati, Ohio
NEW YORK ADDRESS: Room 372, 50 Church St.

SEBASTIAN LATHES



Model C-110 Horizontal Duplex

This is a hand feed horizontal drill particularly adapted to light work, requiring the drilling of two holes in line with each other from opposite sides of the piece. This machine is very simple in design but rigid in construction and the price is reasonable.

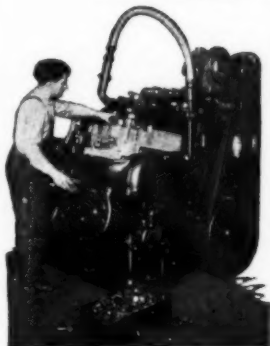
We are Manufacturers of

**Standard Adj. Multiple.
Fixed Center Multiple
Single Purpose Auto.
Hi-Duty Single Spindle
Horizontal Duplex**

**Drill Heads
Universal Joints
Quick Change Holders
Rotary Tables
Fixtures
Drillers—Tappers**

The National Automatic Tool Co.
Richmond, Indiana

Oesterlein Revolutionizes Milling Methods



The Oesterlein Tilted Offset Miller marks a new era in super-production methods. The revolutionary design of this machine has made possible its phenomenal multiple production, resulting in tremendously increased output, lower cost, smaller equipment investment, greatly reduced labor cost and big saving in floorspace.

"Offset"

Accomplishments

Straddle-milling pair of flats on end of pin for conveyor chain at rate of 3000

per hour. Five times previous production.

Straddle-milling part for shock absorber, 740 per hour. Former maximum was 140 pieces per hour.

Production is limited only by the speed of the operator in removing and inserting pieces. Automatic clamping and unclamping saves many hours of production time. For small parts automatic ejection may be provided.

Write for bulletin O M

The Oesterlein Machine Company
Cincinnati, Ohio, U. S. A.

OESTERLEIN
OHIO
MILLING
GRINDING DRILLING
EQUIPMENT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
sizes of single
and multiple
spindle models**

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.



Threading at 3000 R. P. M.

These rods are being threaded with a No. 8-32 thread 5-16" long, at an average production of 1400 pieces per hour on our Standard High Speed Tapping Machine.



*How about your
threaded work?*

Leland-Gifford Company, - Worcester, Mass., U.S.A.

BRANCHES

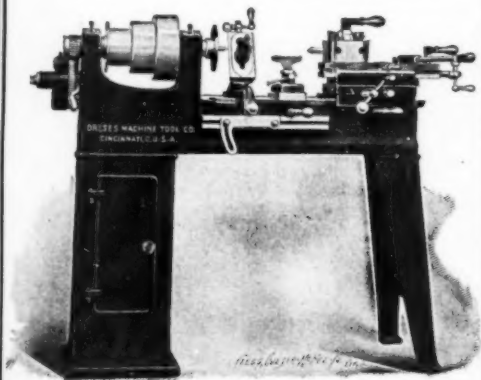
BOSTON CHICAGO CLEVELAND
DETROIT NEW YORK
PITTSBURGH ROCHESTER

AGENTS

Hendrie & Bolthoff
F. E. Satterlee Company
Herberts-Moore Machinery Co.,
F. F. Barber Machinery Co.
Denver
Minneapolis
San Francisco
Toronto

LELAND - GIFFORD

**We Build a
Complete Line
of Brass Lathes
and
Hand Screw Machines**

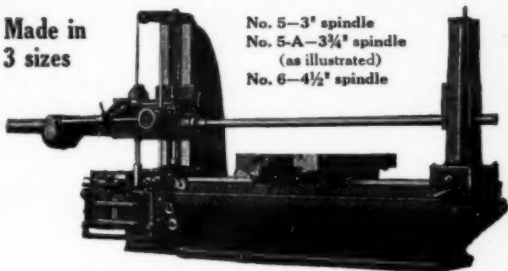


***Write for Prices
and Catalog***

The Drees Machine Tool Co.
CINCINNATI, OHIO

**Made in
3 sizes**

No. 5—3" spindle
No. 5-A—3¼" spindle
(as illustrated)
No. 6—4½" spindle



Defiance No. 5-A Horizontal Boring, Milling, Drilling and Tapping Machine

Defiance machines are made to meet every requirement of machine tool users. Their abundance of power and ease of manipulation insures speedy and accurate production in both single and manufacturing operations.

Speed, power and precision are obtained by simplified design and unusual accessibility, which are only two of the many features which add to their dependability under continued hard usage and their ability to do MORE and BETTER work.

Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines, Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

The Defiance Machine Works
Defiance, Ohio

**Designers and Builders of Precision-Production Machine Tools and
Special Woodworking Machinery**



*It Pays to
Specialize*

**SPEED
12,000
R. P. M.**

**No Vibration
No Heating**

*Ask for full
Information*

**Our
No. 1/2**

Avey

**BALL BEARING
DRILLING MACHINE**

is specially designed for very
light drilling where speed is
the essential rather than power.

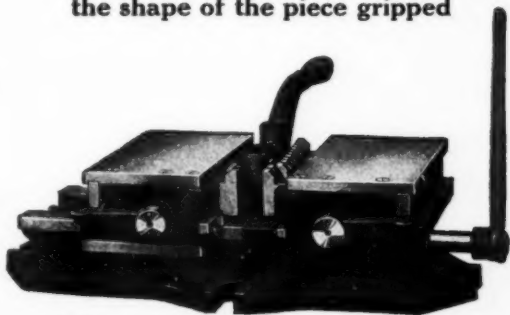
**Eliminates Twist Drill
Breakage**

because the drill cuts so fast
that feed pressure does not
break it.

**The Avey Drilling Machine Co.
CINCINNATI, OHIO**

What You've Been Looking For

A vise with jaws that assume
the shape of the piece gripped



Berjo

Machine and Bench Vises

Berjo vises have multiple compensating jaws which hold *regular* or *irregular* shaped parts positively and securely. The principle

is simple. A practical mechanical arrangement back of the jaws allows them to follow the contour of the work. Two main jaws, one fixed, one movable, hold the segmented compensating jaws. Berjo vises are suitable for all classes of work, but particularly adaptable to the tool room and the shop where a number of variously shaped pieces are going through.

Manufactured by the makers of Avey Drilling Equipment.

The Avey Drilling Machine Co.
CINCINNATI

Designed for High Speed Work

Ready for the Job



C-O
14-inch
High-Speed
Sliding
Head
Sensitive
Drill

3,400
to
10,000
R. P. M.

More
Holes
per
Hour!

Total height, 41".
Vertical adjustment of head, 7½".
Diameter of spindle, 5/8".
Travel of spindle, 3¼".
Maximum distance of bottom of chuck
to base table, 10¾".
Size of base table, 9½" x 12½".

Speed of spindle, 3,400-5,600-10,000.
Largest size of drill, 5/16".
Distance from column to center of sp. 7¼".
Size of sp. pulley, 1½"-2¼" x 1¼" face.
Bench space, 15" x 20".
Net weight, 180 pounds.
Crated weight, 220 pounds.

Complete Information gladly furnished

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

New York Branch
407 Broome St.

Complete stock
carried at branches

San Francisco Branch
955 Folsom St.

The Improved Canedy-Otto No. 29

Ready for the Job



**Completely
Motorized—
Also Furnished
Belt Driven**

The Improved Canedy-Otto Sensitive Bench Drill comes complete with toggle switch, cord, socket, $1\frac{1}{2}$ " endless leather belt, and chuck. The motor is adjusted on a sliding base that maintains the proper tension on the belt at all times, and cuts lost motion and vibration to the minimum. Now equipped with a 3-step cone pulley which gives three spindle speeds of 720, 1430 and 3000 R. P. M. Complete information, with close price, upon request.

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois
New York Branch 407 Broome St. Complete stock carried at branches San Francisco Branch 955 Folsom St.

Frew Automatic Tapper

[Patented.]

FAST tapping operations, accurate work, simplicity of operation and ease of adjustment are easily obtainable with FREW Automatic Tappers. The perfect spindle alignment provided by extra long bearings carried in Timken Roller Bearings, and the smooth automatic operation, enable you to maintain accurate and constant rapid production at a remarkably low tapping cost. Multiple spindle heads can be attached, or three tapper heads can be mounted on a special base. Foot lever attachment may be secured.

Maximum Production— Minimum Tap Breakage

The long bronze bearings eliminate crooked tapping and tap breakage, and permit tap to withdraw from hole *without stripping the last thread*. The FREW will meet your most rigid requirements on standard long run jobs—its adjustments are so simple that even the short runs will pay.

No. 1
Capacity
to 1/2"

Outstanding Features:

Permanent spindle alignment—Elimination of "cocked" spindle—Wide belt surfaces—Simplicity of operation—Easy adjustment—Fewer parts.

Write for Complete Information

The Frew Machine Co.

**124 West Venango St.,
Philadelphia, Pa.**



Drilling—Tapping

If your job was driving tacks, would you drive them with a sledge hammer?

Why are you performing light drilling and tapping, stud and nut setting operations with machines not especially designed for such work?

Investigate the possibilities of The Hammond line of Sensitive Radial, Automatic and Semi-Automatic Drilling and Tapping Machines, as a means to increase production and cut costs in 1929.

*Send us a sample or blue print
of the job that costs too much.*

The Hammond Manufacturing Co.
7808 Kinsman Road, Cleveland, Ohio

CHAMPIONS-

Economical
Efficient
Strong



PATENTED

Champion Expanding Mandrels

One Set of 12 will fill by thousandths
any inside diameter from $\frac{1}{2}$ " to $6\frac{1}{2}$ "

And any expansion within that range is guaranteed

IT'S EASY to figure out for yourself the great savings possible by the use of CHAMPION Expanding Mandrels. For instance, our No. 10 Mandrel, capacity $2\frac{3}{4}$ " to $3\frac{3}{4}$ ", takes the place of 16 solid mandrels graduated by 16ths—and costs *less than one-fifth* as much! That's the difference in first cost only—think of the time saved in locating the particular sized arbor you wish, and knowing that it will not have to be machined, hardened and ground while the lathe stands idle. There are many more advantages fully described in our catalog, a copy of which is yours for the asking.

**Send for
CATALOG**

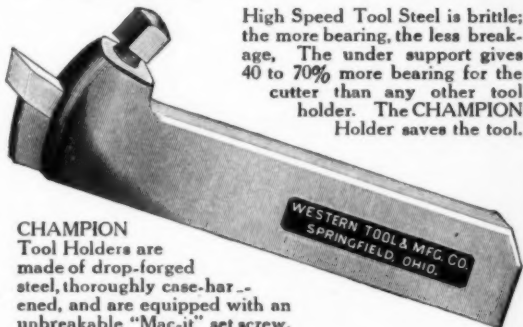
*It's full of economy devices—96 pages,
including Emery Wheel Dressers, T*

THE WESTERN TOOL & MACHINE CO.
Springfield, Mass.

- In Every Way!

"Built to One Standard—The Best"

Champion Tool Holders



High Speed Tool Steel is brittle; the more bearing, the less breakage. The under support gives 40 to 70% more bearing for the cutter than any other tool holder. The CHAMPION Holder saves the tool.

CHAMPION
Tool Holders are made of drop-forged steel, thoroughly case-hardened, and are equipped with an unbreakable "Mac-it" set screw.

THE protruding "under-support" of CHAMPION Tool Holders and Tools with its 40 to 70% increase of bearing surface allows a corresponding increase in cutter economy. It also absorbs the heat from the cutter and allows a heavier cut, with less breakage. Complete information in regard to the following tools will be found in our catalog:

Turning Tools—Boring Tools—Planer Tools
Grooving Tools—Drill Holders
Cutting-Off Tools—Threading Tools

describing the entire **CHAMPION LINE**—
Stands, Vises, Shop Furniture, etc., etc.

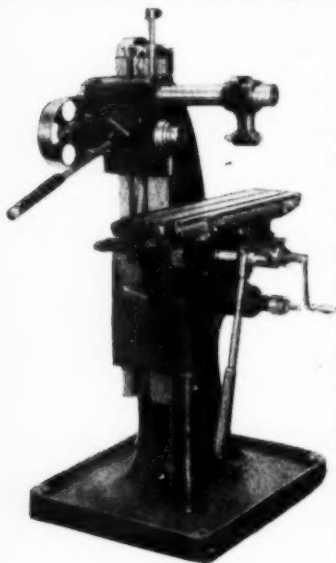
**It's
FREE!**

MANUFACTURING CO.
Ohio, U. S. A.

"SUPERIOR"

Hand Milling Machine

No. 1



WAS DESIGNED to meet the demand for a high grade well built machine to cover a great variety of work within the range of a hand miller.

CONSTRUCTION and WORKMANSHIP is of the very best possible. The head and knee are mounted on long narrow ways accurately fitted with adjustable taper gibs which insures rigidity and long life together with perfect alignment and ease of operation. Friction countershaft is built into the machine so they can be run directly from line shaft or from motor.

In a Class by Itself

THE SUPERIOR is not competitive with other Hand Millers which are now on the market, but is in a class by itself, as is proven by the large number already in use, and the many repeat orders coming from shops having used them for years.

Write for Illustrated Folder Today

We are also Designers and Manufacturers of Special Machinery, Tools, Dies, etc., as well as of Experimental and Model Work.

Superior Machine & Engineering Co.

1920 Ferry Park,

MI

MI

Detroit, Mich.

STANDARD

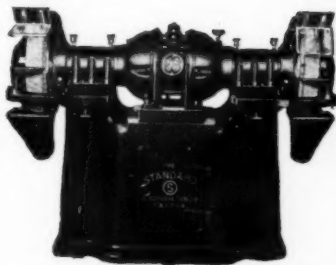
Grinding, Polishing and
Buffing Machines



3-5-7½-10 and 15
H. P. G. E. 40°
Motor. S. K. F.
Ball Bearings.



Made in 3 and 5
H. P. G. E. 40°
Motor. S. K. F.
Ball Bearings.



HEAVY DUTY GRINDER

G. E. 40° Motor and Push Button Control.
Four S. K. F. Ball Bearings. Nickel Steel
Armature Shaft. Made in 5, 7½ and 10 H. P. sizes.

Angle Plate Grinders, Electric Drills, Grinding, Polishing
and Buffing Machines in various types and sizes.

Established 1912

Write for Late Catalog

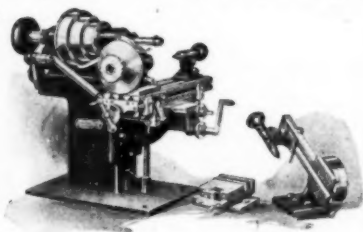
The Standard Electrical Tool Co.
1938 W. 8th St., Cincinnati, Ohio

HARDINGE

Cataract Better Work

Bench Miller

Speed Accuracy Adaptability



Many years of practical experience and designing has brought forth a miller which fulfills the demands of our day—speed, accuracy and adaptability.

Our *Cataract Bench Miller* has a wide range of feeds. It has independent steel indexes graduated to read to thousandths of an inch, and is equally well adapted for the lighter tool-room, mixed or production work.

*Complete data and interesting price
gladly sent on request*

Hardinge Brothers Inc.
4149 Ravenswood Ave.
Chicago, Ill.

Grand Rapids No. 1½ Universal Cutter and Tool Grinder



Newly designed to meet the demand for a high grade machine of medium capacity at a moderate price. It has the sterling qualities that are built into all Grand Rapids Grinders, including exceptional ease of handling—and it sharpens tools right.

Our "Universal Cutter and Tool Grinder" folder, which is yours for the asking, pictures this modern machine in the following grinding operations:—face mill, form cutter, angle cutter, surface, gear cutter, reamer, end mill, spiral and plain milling cutter, internal and cylindrical. It also illustrates Grand Rapids No. 2 Universal Cutter, Tool and Drill Grinder, and Nos. 3, 4 and 5 Universal Cutter and Tool Grinders.

Don't fail to write for folder; it's interesting

Gallmeyer & Livingston Co.

342 Straight Ave., S. W.,

Grand Rapids, Mich.

Universal Cutter, Reamer and Surface Grinder



Cutters from the smallest up to 14" diameter have been economically ground on this machine.

Quick set up for all cutters and reamers. Hardened and ground spindle supported all the way out to wheel. Table has quick travel from two positions. Illustration does not show the attachments accompanying the machine.

Special Circular Sent on Request

Mr. User of **GARVIN** power milling machines of all types including dividing heads all attachments, also GARVIN screw machines and grinders: if you are looking for new machines or attachments or repairs on above, call on us and we will take care of your requirements promptly. We have succeeded the Garvin Machine Co. in the manufacture of the above lines.

Manufacturers Of

Double end horizontal drills, milling machines and attachments, milling machine vises, dividing heads, index centers, single and multiple spindle, hand screw machines, cutter grinders, screw slotters, hand lathes, collet chucks, oval chucks, rotary tables, hex square milling fixtures, air devices, oil pumps.

WRITE FOR CATALOG

JOHN B. STEVENS INC.

25 Cleveland Place,

New York City

Illinois Plain and Surface Grinder



No. 10

This machine has been designed to meet the popular demand for those wanting a general purpose grinder. One end is arranged for surface grinding and the other end for tool or plain grinding.

Special Features

Base: Box type construction, with liberal bearing space for knee, insuring accuracy.

Knee: Supported by elevating screw having ball thrust bearing, Hand wheel graduated in thousandths, long bearing on column.

Spindle: Made of High Carbon Steel, heat treated, runs in 4 Timken tapered roller bearings, adjustment collars to each bearing. Bronze bearings furnished, if desired.

Countershaft: Ball bearing with tight and loose pulley and belt shifting device.

Lubrication: Alemite system for spindle and countershaft.

Write for Complete Specifications and Prices

Illinois Machine & Mfg. Co.
LaSalle, Illinois

Without a Pedrick
Portable Milling Machine

**You Often Pay Its Price
In Delay On One Job**



To appreciate its value just add the savings you could effect in a year by taking this handy, ever-ready tool to the job instead of bringing the job to the tool, then subtract the price. Result—net earning power.

You need this Pedrick Miller to do those big jobs that your standard machines cannot handle.

Catalogue explains all its various operations—
a comprehensive book of reference and key
to manifold savings. Your copy is waiting—
shall we send it now?

Pedrick Tool & Machine Co.

Headquarters for Portable Machine Tools
Boring Bars, Crank Pin Turners, Pipe Benders, etc.

3644 N. Lawrence St.,

Philadelphia, Pa.

PEERLESS SURFACING MACHINES

for
**Grinding and Finishing
Flat Work**

**4' Bench
Model**



**Larger Machines in Both
Horizontal and Vertical Styles**

SEND FOR FOLDER

**PEERLESS SURFACING MACHINE CO., Inc.
TROY, N. Y.**

EXCELSIOR

Circular Angle Bending Machine No. 14

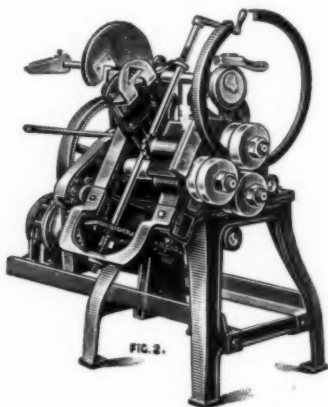
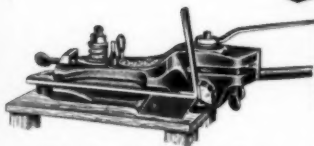


FIG. 2.



Band and Angle Iron
Forming Machine No. 13

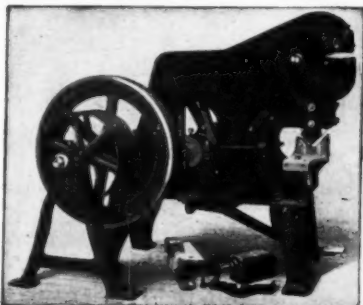


Mfgs. of Shearing and Punching Machines,
Automatic Polishing and Buffing Machines.

Excelsior Tool & Machine Co.

East St. Louis, Illinois

BELOIT



Combined Power Punch and Shear

Built in seven sizes. Nos. 51, 52, 53, 54, 55, 55½ and 56

Direct connected motor or belt drive

THE best all-around punch and shear in a combined machine of moderate cost. Really three machines in one, for it combines the single end punch with the alligator shear for flat bars, and the round cutters for round bars—and all for the price of one single end machine!

HEAVY, substantial, amply back geared to require the minimum amount of power, compact, easy to operate. Can be equipped with angle shearing attachment, angle notching and coping attachments if desired.

Write Today for Catalog and Prices

Hendley & Whittemore Co.

100 S. State St., BELOIT, WIS.

PUNCHES—SHEARS—BENDING ROLLS

Taylor & Fenn Belt Driven
No. 12 Spring Press



**UNIFORM BLOW
SPRING PRESSES**

Are made in
three sizes,
with either
single or
double action

Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of $3\frac{1}{4}$ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

The Taylor & Fenn Co.
Hartford, Conn., U. S. A.



**SMALL in SIZE and PRICE
BIG in ECONOMY and ACCURACY**



**"The
Handiest
Tool in the
Shop"**

—
**7 in.
Shaper
Stroke**

—
**3½ in.
Slotter
Stroke**

The RHODES Shaper and Slotter

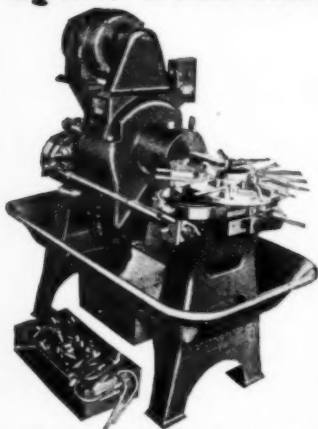
HERE is a real machine tool, built for the rapid and accurate machining of work within its capacity. Nothing better for tools, dies, models, etc., and for shaping and slotting all kinds of light work. Has all the essential features of the large shapers, plus a greater facility in operation.

*Ask your dealer or write for
CATALOG H22*

The Rhodes Mfg. Company
984 Park Road, Hartford, Conn.

SHAPERS—RHODES—SLOTTERS

Spare Your Automatics!



**Do Your
Threading
Faster—
Better—
and at
Less Cost
on the
Single
Purpose**

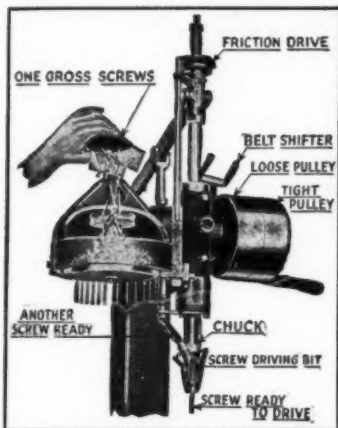
RICKERT-SHAFER Automatic Threading Machine

IT'S A WASTE OF MONEY to use your high-priced automatics for threading purposes when you can use R-S Second Operation Machines instead. Simple—low priced—versatile—they increase production and decrease costs.

THE R-S THREADING MACHINE is the only automatic threader which meets the exacting demands of accuracy among automobile manufacturers. Handles practically every job of threading, from the simplest to the most complicated. Combination tools can be supplied so that chamfering, reaming, facing, etc., can be done simultaneously with the threading, and with but one chucking.

Write for the Descriptive Folder and Prices

RICKERT-SHAFER CO., Erie, Pa.



Showing Magazine Feed of the Reynolds Automatic

Reynolds Automatic Screw Driving Machine with Magazine Feed

WOOD screws, machine screws, short screws, long screws, screws with short bodies and large heads, hex head or square head bolts—almost anything that will fit in the magazine can be driven with the REYNOLDS. And it will drive them so well that, in many instances, the sizes and quantities can be reduced. Simple to operate—and will reduce your screw-driving costs *from 65 to 85%!* Pays for itself in a few months.

Tell us the dimensions overall of your work, the length and gauge of screws used, and we'll send facts and figures showing how the REYNOLDS will save YOU money.

The Reynolds Machine Company

Dept. H. H.,

Massillon, Ohio

***"We have found it
faster than an
automatic
machine"***

Patent Pending



We offer the No. 2 Metal Cutting Saw Sharpener as a universal saw tooth grinder for shops and plants where the expense of installing an automatic unit is not warranted. It is so simple in operation and set up that with an average operator we have found it faster than an automatic machine.

It handles coarse and fine pitch metal cutting saws, inserted tooth and solid milling saws alternate bevel and straight teeth with equal efficiency. Its range with or without index is from 6" to 40" dia. *Furnished with or without motor drive.*

Huther Bros. Saw Mfg. Co., Inc.
Rochester, N. Y., U. S. A.

**You'd hate to go back to
Oil Lamps_____**

THEN

WHY

**Do
Your
Filing
and
Sawing
by
Antiquated
Methods
?**

**Type
1-AP**



**THIS machine will boost
your production and will
save many dollars wasted
the old way.**

**WHY NOT save 60%
on your filing and sawing
costs ?**

**THE J. & B. FILING
and SAWING MA-
CHINE is sure to pay
for itself many times.**

Write for Complete Details

LaPorte Machine & Tool Co., Inc.

LaPorte, Indiana

OUR MACHINES
SALVAGE

YOUR HARD TEMPERED METAL CUTTING

Band Saws

Hack Saws

**MILLING, SLITTING AND
SCREW SLOTTING SAWS**

Write for Catalog

THE WARDWELL MFG. CO.

Makers of automatic machines for sharpening—Hack Saws, Hard
Tempered Band Saws, Milling, Slitting and Screw
Slotting Saws and all Woodworking Saws.

Manufacturers of the largest line of Saw Filers made in U. S. A.

108 Hamilton Ave.,

Cleveland, Ohio

Improved to the Minute

For Sawing Solid Bars, Beams, Channels, Angles, Tees, Etc. For Accurate Die Work, Tool Room Work, and All Kinds of Shop Sawing, Use the MARVEL METAL BAND SAW No. 8

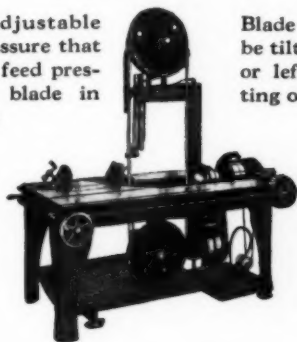
It cuts off square and true, and will also cut on an angle right or left without swinging the bar around the shop.

CAPACITY up to and including **18 INCHES**

Write us today. Put one of these machines to work in your shop.

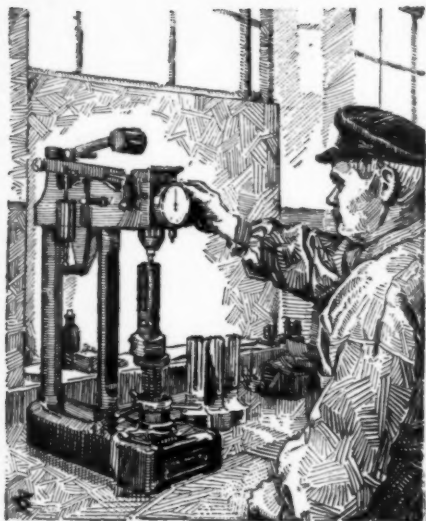
NEW adjustable blade pressure that indicates feed pressure on blade in **POUNDS.**

Blade frame can be tilted to right or left for cutting on an angle.



*Write today for special circular—
And list of satisfied users*

ARMSTRONG-BLUM MFG. CO.
341 N. Francisco Ave., CHICAGO, ILL.



The ROCKWELL Hardness Tester

Sweden has adopted this American made tester for the majority of hardness tests.

All Swedish steel mills are equipped with Rockwells and Swedish shops use scores of Rockwell Testers.

Nothing but marked superiority and adaptability could account for this.

WILSON-MAEULEN **CO**
INCORPORATED

735 East 143rd Street,

New York

Type RF-M4 Machine



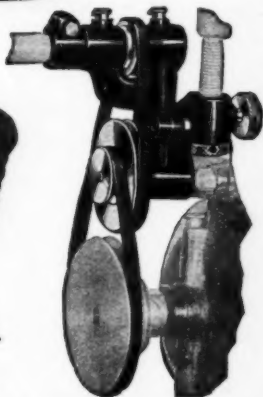
Strand

Capacity— $\frac{1}{4}$ H.P.

For
Rotary Filing
Grinding
And
Polishing

10,000 R. P. M. Attachment Furnished Extra when Required. See Illustration.

Attachments



N. A. STRAND & CO.

Manufacturers

5001 No. Lincoln Street
CHICAGO

PATENT APPLIED FOR

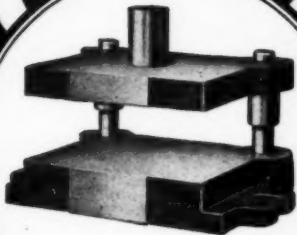


NEEDED for constant reduction in finishing has widened the field of ball burnishing unbelievably. Twenty years ago ABBOTT ball burnishing barrels were accepted as the ideal means of finishing small work such as buttons, buckles, etc. To-day improved ABBOTT barrels are producing results on stampings, spun and threaded work, castings and forgings—on safety pins and safety razors.

*Let us submit a burnishing analysis
on your work. Send samples.*

The Abbott Ball Company

1043 New Britain Ave., Hartford, Conn.



Danly Die Sets

**Completely Assembled,
Semi-steel; or steel shoe,
semi-steel punch holder.**

**Immediate delivery from stock at 20-50%
saving in cost; a set for every need. Over
4000 makers of stampings use them.**

Send for new edition of catalog

Danly Machine Specialties, Inc.


2116 So. 52nd Avenue, Chicago, Ill.

**Detroit
Mich.**

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N. Y.**

**DANLY
STANDARD**

TAYLOR-WINFIELD WELDERS



EVEN if you had to pay more to get the advantages of Taylor-Winfield welders, they would be a paying investment. But it actually costs less to increase your output the Taylor - Winfield way. Spot, butt, seam or portable!

**The Taylor-Winfield
Corporation
Warren, Ohio**



KRW Hydraulic and Sensitive ARBOR PRESS

**Gives All - Around
Efficiency at very
Low Cost**

THE latest improved combination KRW Hydraulic and Sensitive Arbor Press includes many improvements not found in any other press, at any price.

35 TONS CAPACITY

Hydraulic pressure easily operated by one hand controls movement of ram to one-thousandth of an inch movement. Automatic air vent and pinion brake holds ram at any height when not in use.

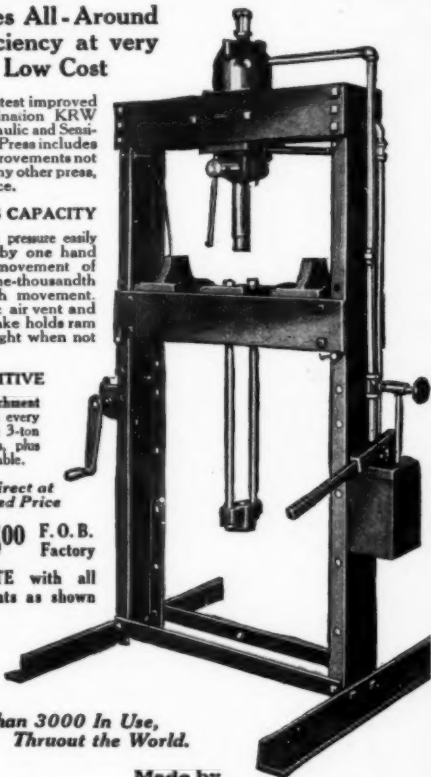
SENSITIVE

Press Attachment incorporates every feature of a 3-ton bench press, plus adjustable table.

*Sold direct at
Reduced Price*

\$115⁰⁰ F. O. B.
Factory

COMPLETE with all
Attachments as shown



***More Than 3000 In Use,
Thruout the World.***

Made by

K. R. WILSON, 10-14 Lock St., BUFFALO, N. Y., U.S.A.

THE BULL DOG

$\frac{1}{2}$ " Drill

UNIVERSAL

only \$48.00



Before you buy a drill—look at this record!

**FREE trial for
one week!**

Try this Bull Dog Drill for one week—abuse it, knock it around, test it any way you wish—if it doesn't take all the punishment you can give it, return it and get your money back!

Get One Now!

Here's a real heavy duty drill that offers you the greatest money saving opportunity. The combined balance and sturdy construction of this drill permits a cutting rate up to $1\frac{1}{4}$ inches per minute! Recent tests at the New York University laboratory give it the *highest* and *safest* class rating of the Electric Power Club. In a performance test this Bull Dog drove a drill through five inches of ordinary soft stone in seven minutes, without overheating. Two outstanding features are its light weight and its slow speed of only 160 r. p. m. under full load. The seven new innovations embodied in its design, make it the last word in drill perfection.

Absolutely guaranteed for one year!

***For sale everywhere or send
your order to—***

National Electric Products Co.
Dept. H. 148 Baxter St., New York, N. Y.

Economy Production On Small Parts Of All Shapes



Wide adjustability of feeds and speeds.

Work is clamped and ejected automatically.

Both hands left free to handle work.

Stecher Automatic Universal Bench Drill

A momentary pressure on the knee control under the bench, and the Stecher Automatic does the rest, leaving both of the operator's hands free to handle the work. It clamps the piece, feeds the drill thru it, and ejects it without a hitch.

The number of holes that can be drilled in a given time is limited only by the capacity of the drill; the feed and speed of which are easily adjustable to the work in hand.

By merely pulling down the hand lever the Stecher will change from an automatic production tool with a power feed, to a high speed, hand feed, sensitive drill press.

*Send us a sample of your small parts to be drilled,
and we will show you real economy*

The Chas. Stecher Co., 2452 N. Greenview Ave.,
CHICAGO, ILLINOIS



MACHINE TOOL AND GENERAL
PURPOSE PUMP



MOTOR DRIVEN UNITS
½ to 5 H. P. 5 to 75 G. P. M.

VOLUME PUMPS

FULFLO delivers coolant in volumes which promote efficiency in cutting tools.

The full, copious flow from the Fulflo is needed to make the best tool, with the best coolant, most effective,

FULFLO does not clog, therefore it always

works. It's the trouble proof pump.

No machines stopped to unclog pump. All the chips you can get into it pass through without harm.

FULFLO has longest life because its only pumping part does not wear.

MANUFACTURED BY

FULFLO SPECIALTIES CO., BLANCHESTER, OHIO

GUSHER PUMPS

**Withstand the
Constant Wear
and Tear of
TIME**



Model T-L-O

Equipped with $\frac{1}{4}$ h. p. motor, has $\frac{3}{4}$ " inlet and is set vertically outside of pan. Delivers 18 gal. 3' high; 13 gal. 6'; 10 gal. 9'; 8 gal. 12'; 3 gal. 20'.

Model T-L is identical in capacity and equipment save that it is immersed in the reservoir and is able to pump over 20' high through $\frac{1}{2}$ " discharge with 10 lb. pressure. Ideal for deep hole drilling or boring.

GUSHER PUMPS are built to outlast the machines they serve. To accomplish this the makers have eliminated all packing nuts, foot and relief valves, and the necessity for priming as well. The deteriorating effects of friction are banished through the use of ball bearings, and the ball bearings are protected against the effects of the lubricant by the obtaining of perfect hydrostatic balance.

Dirt-Grit-Chips-

These ancient enemies of all lubricating systems, in spite of their menacing threats, are powerless to effect the sturdy GUSHER Pumps. For they are all constructed in such a way that foreign substances pass through without injuring the mechanism in the least.

Gusher Lubricant Pumps

are made in many styles and sizes, of all desirable capacities, with individual motor or belt drive. Can be furnished, if desired, to set outside reservoir and connect by piping.

*Write for complete Catalog of "GUSHER PUMPS"
with facilities from 12 to 75 gallons per minute.*

The Ruthman Machinery Co.

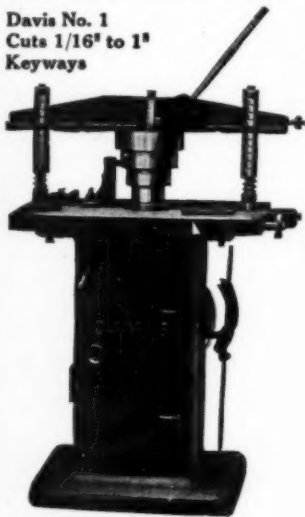
528-534 E. Front St.,

Cincinnati, Ohio

Rapid Keyseating—

In Quantity or in Small Lots

Davis No. 1
Cuts $1/16"$ to $1"$
Keyways



Cutting Keyway in Cone Pulley

THE DAVIS

has the
speed for
economical
production
of standard
parts.

THE DAVIS

can be
set up
quickly
in the
general
shop for
all sizes
of keyways
within its
capacity.

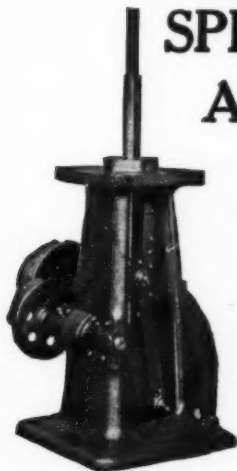
The Davis is simply constructed, is difficult to get out of order, and is easy to adjust and operate. It is a rapid and economical producer of accurate keyways under all conditions.

Write for folder, which describes it fully, with a table of cutting time that tells its own story.

Davis Keyseater Company

255½ Mill St., Rochester, N. Y., U. S. A.

DURABILITY SIMPLICITY SPEED ACCURACY



Feature the Universal

CATLIN KEYSEATER

For these reasons the Catlin Keyseater is found in U. S. Government Shops, Automobile Plants, Machine Shops, Navy Yards, Factories, and many Foreign Countries.

The Catlin Keyseater is accurate to the 1000th of an inch, has half the moving parts of any other keyseater, constructed rigidly and ruggedly, built for continuous production, and is exceptionally easy to operate.

Illustration shows our Catlin No. 1 Keyseater which has a stroke adjustable to 13 inches and cuts keyseats from $\frac{1}{8}$ th to $1\frac{1}{2}$ inches. We have keyseaters for all sizes and capacities.

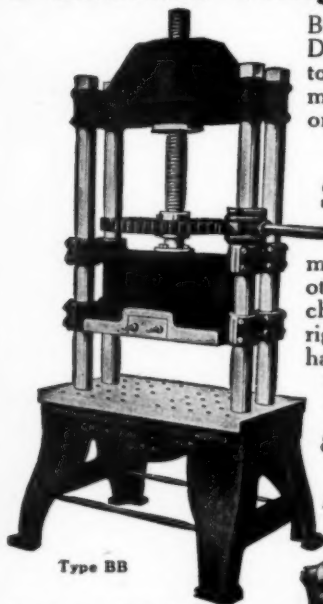
Write for descriptive folder Today!

Chattanooga Machinery Company

2401 Bennett Ave.,

Chattanooga, Tenn.

Perfect Alignment



Type BB

Between Punch and Die enables one man to do speedier and more accurate work on this

Four Post Screw Press

than two men can do on any other type of machine. Sensitive and rigid in operation, it has power to shear in any die within its capacity.

**80 tons pressure—
table 20"x36"**

Also three smaller sizes

Surface Grinder

Silent efficiency is the action of this powerful and rigid surface grinder—equipped with graduated feeds and all the latest attachments.

Price and details on inquiry

**JARECKI MACHINE
AND TOOL CO.**

Department A

GRAND RAPIDS,

MICHIGAN



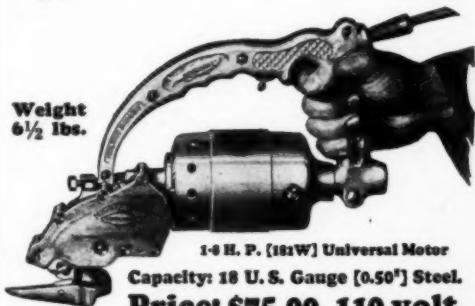
**\$1.00 Saved Per Day Means
\$300. Per Year**

**Follow The Tool Economy of
Over 6000 Unishear Users**

Unishear Cuts Your Cutting Cost in Half

THE MIGHTY MIDGET

**Weight
6½ lbs.**



1-4 H. P. (181W) Universal Motor

Capacity: 18 U. S. Gauge [0.50"] Steel.

Price: \$75.00, 110 volt.

\$78.00, 220 volt.

**A MIDGET in size—a GIANT in power. Built with the
precision of a watch and the ruggedness of a Pile Driver.
Easier to handle than a pair of snips.**

The



Line

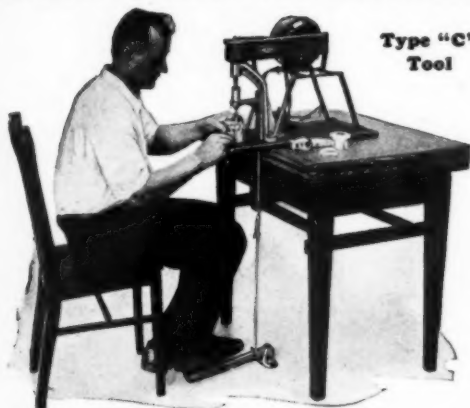
**Includes many other models in heavier machines for cutting sheets up
to ¼" boiler plate, all built on the famous Unishear principle.**

Complete Catalog sent on request.

The UNISHEAR CO., Inc.

Main Office & Factory, New York, N. Y., 270 Lafayette St.

SCREW DRIVING VIM NUT SETTING
Electric Bench Machine



**Type "C"
Tool**

A Time and Money Saver

FOR PRODUCTION WORK use the VIM Electric Bench Machine for screw driving and nut setting. It will speed up your work—no effort is required to operate it, slight pressure on the foot pedal is all that is required. Can be set up ready for operation in 15 minutes. Many users have more than doubled their production. Five or six machines can be used on 12 foot bench. The investment will pay for itself in one month.

PUT YOUR PROPOSITION up to us. We have many models to suit nearly all requirements—including our

PORTABLE FLEXIBLE SHAFT VIM TOOL.

Write for Catalogue and Prices

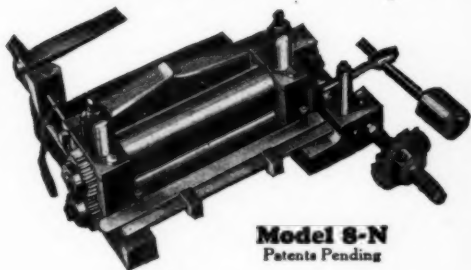
VIM TOOL COMPANY

149 Broadway,

New York City

Automatic Reversible ROLL FEED

For Any Punch Press



Model 8-N
Patents Pending

A universal, flexible feed, for automatically feeding Metal, Paper, Leather, Brake Lining, or any stock from coils—from wire to 8" widths and lengths of 0" to 36" at each stroke of the press at rated catalog speed or faster.

This feed mounts on either right or left side of the Bolster Plate, either as a Push or Pull feed. May also be mounted in tandem, one on the right and one on the left as a Push-Pull feed for paper or light stock.

The drive is by chain from a sprocket on the crank shaft, using any sprocket ratio desired.

PRICE \$195.00 F. O. B. Chicago

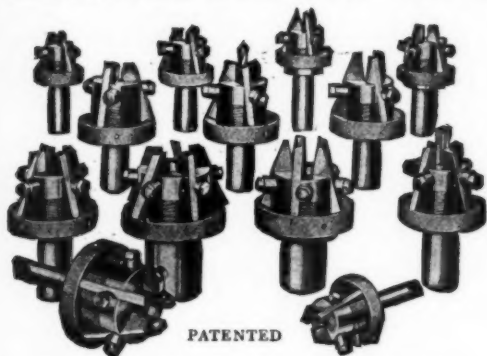
Wittek Manufacturing Co.

DEPT. 3

2532 So. Kedzie Ave.,

Chicago, Ill.

Genesee Hollow Mills



Seven Sizes Cover Work from $\frac{1}{8}$ " to 2"

Only seven sizes of Genesee Adjustable Hollow Mills are needed to cover the entire range from $\frac{1}{8}$ " to 2"—compared to the hundreds of solid tools necessary to do the same work. Think of the saving in costs, which is but one of the advantages Genesee Hollow Mills have to offer you.

They are speedy, cutting up to 15" a minute in steel. Accurate too, machining all sizes within their capacity to 1000ths of an inch. They cannot change their size nor clog with chips as do solid tools.

Made in six styles, from the heavy roughing Style "B" to the accurate finishing Style "F". Also made in Style "N" for all Brown & Sharpe automatics and in special styles and sizes to your order.

Write Today for Complete Information

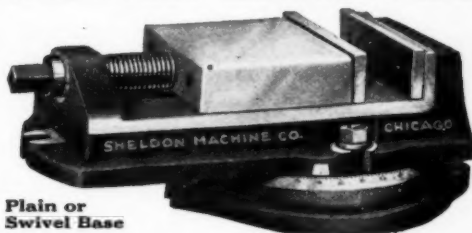
Genesee Manufacturing Co., Inc.

141 North Water Street, Rochester, N. Y.

Manufacturers of Genesee Rapid Production Tools

Est. 1908

SHELDON MILLING MACHINE VISES



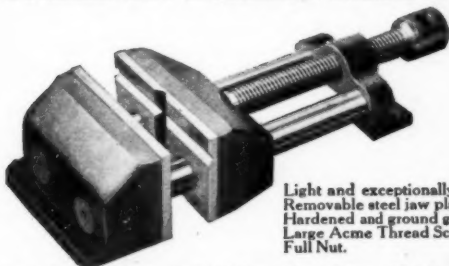
Plain or Swivel Base

The swivel vise is the plain vise with the addition of a circular base, graduated in degrees. It can be removed from the circular base and used as a plain vise if desired.

Specifications and Prices

No.	Width Jaws	Depth Jaws	Jaws Open	Plain Vise		Swivel Vise	
				Weight	Price	Weight	Price
3	3 1/2"	1 3/8"	2 1/2"	15 lbs.	\$16.00	25 lbs.	\$20.00
4	4 1/2"	1 7/8"	3 1/2"	30 lbs.	\$20.00	45 lbs.	\$24.00
6	6 1/2"	2"	4 1/2"	70 lbs.	\$30.00	90 lbs.	\$40.00
8	8 1/2"	2 1/2"	6 1/2"	160 lbs.	\$45.00	225 lbs.	\$60.00

SHELDON DRILL PRESS VISE



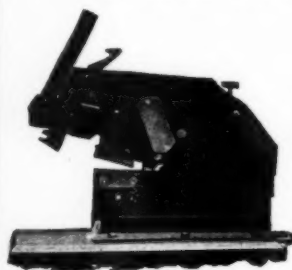
Light and exceptionally strong.
Removable steel jaw plates.
Hardened and ground guide bars.
Large Acme Thread Screw.
Full Nut.

No.	Width of Jaws	Depth of Jaws	Jaws Open	Weight	Price
D-4	4 1/2"	1 1/2"	4"	15 lbs.	\$12.00
D-6	6 1/2"	1 3/4"	6"	35 lbs.	\$18.00
D-9	9"	2 3/8"	9"	70 lbs.	\$24.00

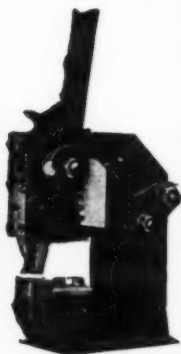
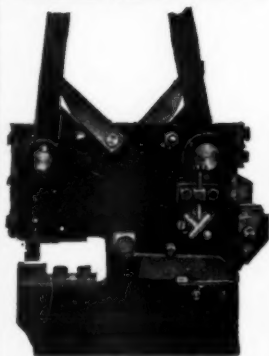
SHELDON MACHINE CO. 3251 Cottage Grove Ave., CHICAGO, ILLINOIS

FORGED STEEL Hand Power Punches & Shears

Complete Catalog on Request



A Lifetime
of Service
Precision Built
Large selection
of sizes in
Single or
Combination
Machines



JULIUS BLUM & CO.

532-540 W. 22nd St.,

New York

Scratch Awl & Drift Pin No. 16. Roller Bearing Punch



Drop Forged—Alloy Steel-Hardened

No. 5. Jr. Punch



Capacity $\frac{1}{4}$ " thru 16 gage
Weight $2\frac{1}{2}$ lbs.

No. 0. Solid Set



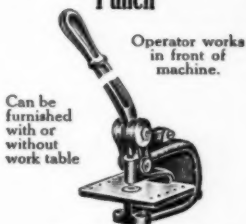
Made from High Grade
Tool Steel

No. 50 Angle Iron Mitre Notcher and No. 51 Angle Iron Bender



Capacity will shear Mitre in
 $2" \times 2" \times \frac{1}{4}"$ Angle Iron.

Weight of Mitre Notcher 55 lbs.
Weight of Mitre Notcher Bender 43 lbs



Operator works
in front of
machine.

Can be
furnished
with or
without
work table

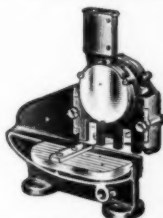
Capacity $\frac{3}{8}$ " thru $\frac{1}{4}"$

Hollow Punch Set



Self Centering Locating Spring Point.
Made in 3 sizes.

No. 6 Slitting Shear



Roller Bearing
Cap. $\frac{3}{16}"$ Thickness, Throatless
Drop Forged

Write for Catalog on Entire Line

WHITNEY METAL TOOL CO.

95 Forbes St., Rockford, Ill.

For Railroads and Machine Shops



Wherever nuts are turned
time can be saved by using the

FAVORITE reversible ratchet **WRENCH**



Built Strong to Stand Rough Usage



A motion study test will show that
a man with a "FAVORITE" Wrench
will turn far more nuts in a given
time than a
man with an
ordinary open
wrench.

*Write for full
particulars*

Greene, Tweed & Co.

Sole Manufacturers
109 Duane St., New York



Etchograph

Trade Mark



Patented July 8, 1918
Patent No. 1,309,100

Mark Your Tools

With the ETCHOGRAPH, the original electric marker, and the only one having *six stages of heat*, iron, steel or steelite can be marked in one-fifth the time required for other methods. Simple to operate—plug in at the nearest light socket and write as with a pencil. No acids, no fuss, no elaborate preparations necessary.

Write for details, stating power available

William Brewster Company
50 Church St., New York



ETCHTOOL

*Guaranteed
fool-proof
and durable.*

*Used on A. C.
light circuit.*



Luma Combination Electric Etching and Demagnetizing Instrument

Easy to use as a lead pencil

A time and labor saving tool that functions equally well permanently marking expensive high speed steel tools and demagnetizing large or small ones.

Always instantly ready without fuss or muss

Operation symbols plainly and permanently marked on tools saves time and spoiled work and speeds production.

Luma Electric Equipment Co.

P. O. Box No. 132 Main Office,

Dept. H.

TOLEDO, OHIO

Satisfaction Guaranteed

*If you are not fully
satisfied with any
tool bought from
us, RETURN IT
within ten days and
full credit will be
given.*

The Improved E-Z Set Boring Tool

Made in 3 Sizes

Compact, Simple in construction. Positive in adjustment. Lasts indefinitely. The Shank, being a separate unit, is instantly adaptable to any machine.

Send for Circular

**The
Maxwell Products
Company**

**Ottawa & Indiana Ave.,
Cleveland, Ohio**



E-Z THREAD DIAL

Thread cutting on engine lathes made easy, and at lower cost. Made in four sizes. Can be easily attached to all size lathes. A reliable device that will aid the operator in the work of cutting threads. With it threads can be cut close up to shoulders as easily as the ordinary thread.



Eliminates stopping or reversing the lathe.

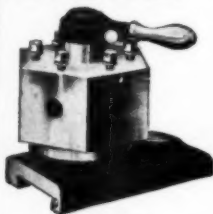
The many repeat orders received prove it is satisfactory after trial.

Can be shipped within two days after receipt of order.

Sent on thirty days' trial. Send for latest folder today.

JAMES M. COLVEN, 20 Wolfe Street, Yonkers, N. Y.

STANDARDIZED LATHE TURRETS



8 Styles

12 Sizes

For any make or size of Lathe old or new.

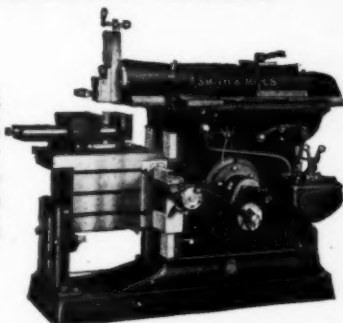
STYLE "B"
Hexagon head, for round shank tools and bolted on fixtures

Ask for Circular No. 18

FAY & SCOTT
DEXTER, MAINE

SHAPERS

12", 14", 16",
20", 25" Gear
Box single pul-
ley or motor
drive also 16",
20", 25" B. G.
cone drive with
belt shifter. 32"
B. G. all geared
single pulley or
motor drive, all
sizes crank type.



The Smith & Mills Co., Cincinnati, O., U.S.A.



Die Making Machines

save an average of 50%

Dies, templets, experimental parts, gages and the like can be sawed, filed and lapped on the Oliver of Adrian Die Making Machine much easier, more accurately and in a fraction of the time ordinarily required for handwork.

We also manufacture a line of

Point Thinners.

Drillpointers.

Cutter Grinders



*Send
for
Bulletins*

Oliver Instrument Company, 1408 Maumee St.,
ADRIAN, MICH.

— RIGHT —

QUALITY — PRICE — SERVICE



Hollow Bored Forgings — Steel Shafts

If you use Lathe Spindles, Piston Rods, Clutch Shafts, Rams, etc., in your products—

If you want them to stand up in service—

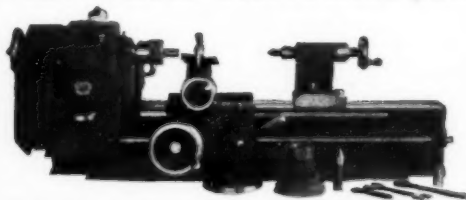
If you want them as you need them—

SPECIFY "AMERICAN"

Send Blueprints for Trial Order or Quotation

American Hollow Boring Co.
Erie, Penna.

9" A.V. Carroll Geared Head Lathe



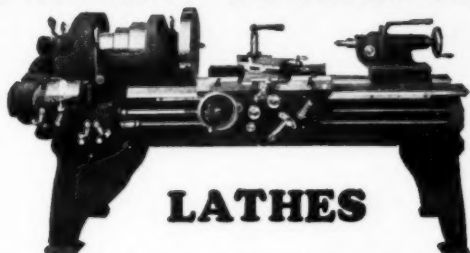
A 9" Geared Head Lathe for manufacturing plants, tool rooms, industrial plants, schools, service stations, homes and jobbing shops.

We invite comparison. All steel gears, three changes in head and gear box. $\frac{1}{4}$ H. P. motor direct connected. Cuts threads 5 to 40 right or left hand.

Circulars on request

A. V. Carroll Machine Tool Co.
Norwood, Cincinnati, Ohio

The NEW HAMILTON



LATHES

are unsurpassed for strength and accuracy. Most convenient heavy duty quick change gear lathes for production and tool room use. Single and double back gear with cone drive. Geared head with belt and motor drive.

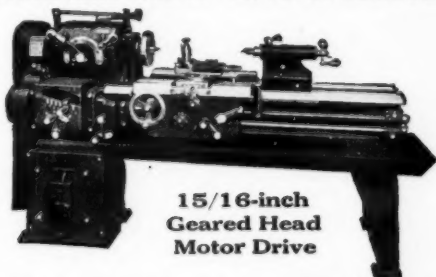
Sizes 16'-18'-20'-22' and 24'

Send for new catalogue bulletin

The Hamilton Tool Co., Hamilton, Ohio

DO YOU KNOW

about this NEW C. & J. LATHE?



**15/16-inch
Geared Head
Motor Drive**

LET US SHOW how it meets MODERN needs
Carroll & Jamieson Machine Tool Co.
Batavia, Ohio

GEARS

All Kinds—Small



The most accurate made and prices reasonable. We carry a complete line of gears in stock for immediate shipment. Can also quote on special gears of all kinds. Send us your inquiries.

Write for Catalogue No. 70

CHICAGO STOCK GEAR WORKS
105 South Jefferson Street, Chicago, Ill.

MIKRON



**AUTOMATIC
SMALL PRECISION**

**Gear Hobbers
Gear Cutters
Pinion Hobbers
Thread Millers
Hob Grinders**

Catalogs On Request

Triplex Machine Tool Corp.
50 Church St., New York City

MG MASSACHUSETTS GEAR MAKE GOOD



ALL TYPES:
Spurs, Internals, Bevels,
Mitres, Helicals, Spirals,
Worms, Worm Gears,
Sprockets, Ratchets.

ANY MATERIAL:
Steel, Cast Iron,
Brass, Bronze,
Aluminum, Fibre,
Bakelite, Rawhide.

Made in Small and Medium Sizes, all of One Quality—the very best. We also carry a full line of Stock Gears for immediate delivery. *Write us.*

MASSACHUSETTS GEAR & TOOL CO.
36 Nashua St., Woburn, Mass.

Speed Reducers

For every possible requirement for stepping down motor speeds, there's an IXL reducer that exactly fits your needs.

Spur—Worm—Herringbone

Reductions from 2 to 1 up to 50,000 to 1.

Send for 660 page catalog
"Gear Problems."

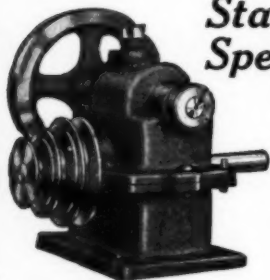


IXL Spur Reducer

FOOTE BROS.
IXL GEAR & MACHINE CO. IXL

229 N. Curtis St., Chicago

STANDARDIZATION PAYS



Type BU-2

Standardized Speed Reducers

For immediate delivery

Send for Catalog giving complete specifications and prices on complete series of Boston Speed Reducers.

Boston Gear Works Sales Co.

Norfolk Downs, Mass.

Boston, New York, Philadelphia,

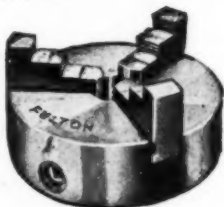
Cleveland, Chicago

Service Stations in Principal Cities

BOSTON GEARS

Fulton STEEL BODY Universal

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Chucks

AT THE PRICE OF A CAST IRON CHUCK

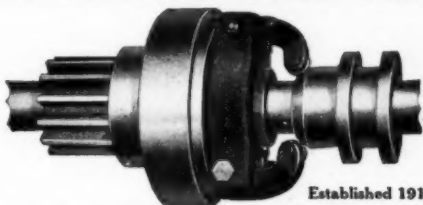
A one-piece body of solid cast steel. Impossible to break or split. Unconditionally guaranteed.

Send us your trial order without obligation on your part.

All Sizes Always in Stock

UNITED HARDWARE & TOOL CORP., 50-52 Howard Street,
NEW YORK

The Carroll Friction Clutch



Established 1912

Adjusted by simply turning friction finger nut which automatically adjusts both fingers with the same tension, it is impossible to adjust them wrong and so simple any workman can make the adjustment.

Its simplicity, its powerful leverage, the ease and certainty of proper adjustment, its 100% contact with consequent reduction of wear and lengthened service, all combine to make the Carroll Clutch at once the most economical and efficient.

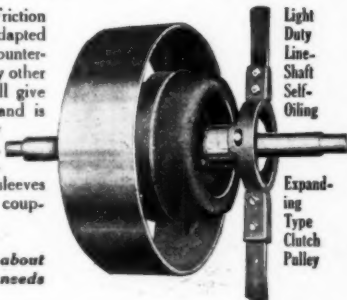
Write for prices and dimensions for your particular needs

L. W. Carroll Manufacturing Co.
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Edgemont Type B Friction Clutch

The Type B Friction Clutch is well adapted for line-shaft, counter-shaft and many other drives. It will give good service and is simple and easy to operate. Made in pulleys, extended sleeves and cut-off couplings.

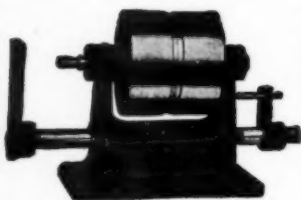
Write us now about your clutch needs



Edgemont Machine Co., Inc., DAYTON OHIO

BURKE

Efficient Light Tapping



This Burke Tapping Machine is a mighty handy and profitable tool. Not only does it handle a wide range of tapping work, but also reaming, lapping, burring, counter sinking, assembling and many other important operations.

It is automatic and turns out the work as fast as it can be fed. Tap breakage is held to a minimum and a stripped thread is practically unknown.

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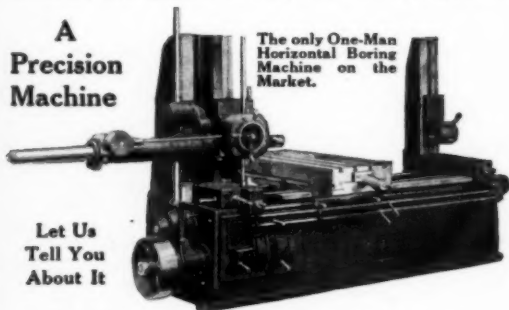
The Burke Machine Tool Co.

297 East 16th Street,

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Lambert Horizontal Boring and Milling Machine

**A
Precision
Machine**



The only One-Man
Horizontal Boring
Machine on the
Market.

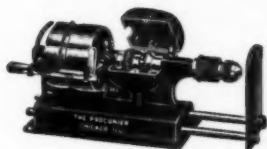
**Let Us
Tell You
About It**

Full Details, Specifications, Price, etc., on Request

Lambert Machine & Engineering Co.

East 55th St. at Euclid Ave., CLEVELAND, OHIO

"PROCUNIER"



Bench Tappers

Tap blind holes just as easily as through holes with the "Procunier" Safety Friction Device and "Double-Jaw" Tap Holder.

*Catalogue 102-B gives complete details of
PROCUNIER Tapping Devices, Quick
Change Chucks and Stud Setting Tools*

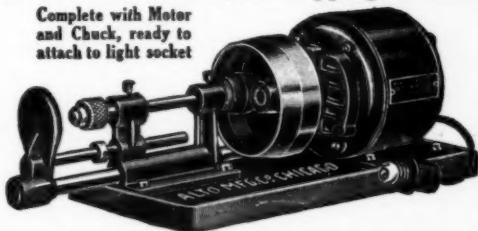
Procunier Safety Chuck Co.

14 So. Clinton St.,

CHICAGO, ILL.

No. 1 ALTO Motor Driven Tapping Machine

Complete with Motor
and Chuck, ready to
attach to light socket



The ALTO No. 1 is a simple but compact Tapping Machine. Entirely self-contained, it operates from any handy light socket. It will tap forward at the rate of 1450 r. p. m. and reverses *three times as fast*—at the rate of 5000 r. p. m. Has a capacity of $\frac{3}{16}$ " in brass and $\frac{3}{32}$ " in steel. The low price enables it to pay for itself. We also make other sizes of Tapping Machines.

Write for descriptive matter and price

**The Alto Mfg. Co., 1647-51 Wolfram St.
CHICAGO, ILL.**

Good Grinders



**BELTED
and
DIRECT
MOTOR
DRIVEN**

*Ask for New Catalog
on Ball and Roller
Bearing Grinders and
Polishing Lathes.*

Hill-Curtis Co.

**1614 DOUGLAS AVE.,
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VICTORY POLISHER

**Timken
or Ball-
Bearing**

\$75

**For Single Tight
Pulley Machine**

**\$95.00 For Tight and Loose
Pulley Machine**

America's Greatest Value

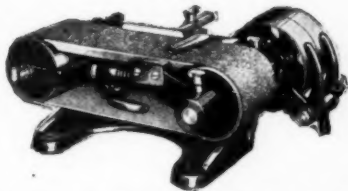
**Spindle 1 1/4" between
flanges and 50" overall**

HILL-CURTIS Co.
POLISHING AND GRINDING MACHINERY
KALAMAZOO MICHIGAN

**Send
for
Catalog H**

Abolish Expensive Hand Finishing

with a



Simplex-A Abrasive Band Grinder

This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. Details of this and other styles and sizes on request.

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Thompson Universal Grinder

Gives a performance that never varies in accuracy. No matter what diversity of grinding processes your shop requires, every one of them may be completed on the Improved Thompson. Self-contained, motor driven, it gives the most efficient and rapid production.

These machines are now equipped with the new auxiliary coarse cross feed for surface grinding.

Capacity 12"x36"

**The Thompson
Grinder Co.**

1534 West Main St.,
SPRINGFIELD, OHIO



Polishing Iron Lathe Carriages

with
the

**TAKE-
ABOUT**

Grinder

As used by Monarch Machine Tool Co., Sidney, Ohio. You, too, would find it saves time by bringing machine to work — no costly set-ups. Belt action assures polish. Other features.

**The Porter-Cable
Machine Co.**

Salina St., Syracuse, N.Y.



Racine Shear Cut Production Saw—Positive screw feed, cutting time never varies. Blade life is trebled.

Consider These New Standards

The Racine Shear Cut Saw has established new metal cutting standards.

By employing an exclusive new principle of positive, progressive screw feed these advantages are secured: Cutting time in all metals is reduced at least half—constant production at the increased rate is assured—blade life is trebled.

This revolutionary machine enables your production department to set and maintain exact schedules in the cutting department. Write.

Racine Tool & Machine Co.

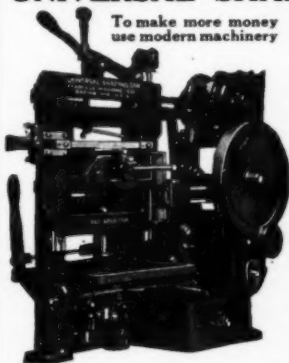
1429 Junction Ave., Racine, Wis.

RACINE

HIGH-SPEED

METAL CUTTING MACHINES

—PEERLESS— UNIVERSAL SHAPING SAW



To make more money
use modern machinery

**Different Principles
Greater Efficiency**

Give The Most Of—

**Speed
Accuracy
Blade Economy**

SIZES:

6"x6"--9"x9"--13"x13"

PEERLESS

HIGH SPEED HACK SAWS

6"x6" 9"x9" 13"x16"

Sturdy--Efficient--Reliable

Peerless Machine Co.

**1218 Sixteenth St.
Racine, Wisconsin**

Write for Details



**Hack
Saws**

VICTOR High Speed Steel Hack Saw Blades

The low cost of *Victor High Speed Steel Blades* is easily determined by the greater number of cuttings of each blade. This blade so completely answers every possible cutting requirement, that it exceeds the makers' highest expectations.

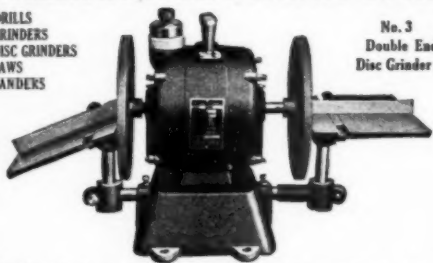
For power work *Victor High Speed Steel Blades* will give you cutting efficiency and lasting qualities that has not been experienced in any other blade.

VICTOR SAW WORKS, Inc., Middletown, N. Y.

Winterhoff Motor Driven Portable Tools

DRILLS
GRINDERS
DISC GRINDERS
SAWS
SANDERS

No. 3
Double End
Disc Grinder



The No. 3 has been designed to meet a demand for a medium priced machine that would furnish a true flat grinding surface, and would stand up under any usage. Its sturdiness, accuracy and handiness are unsurpassed. *Write today concerning Winterhoff Portable Tools.*

Winterhoff Tool & Machine Co., 109 South Elkhart Ave.,
ELKHART, IND., U.S.A.

Sensitiveness and Precision

are the leading characteristics of

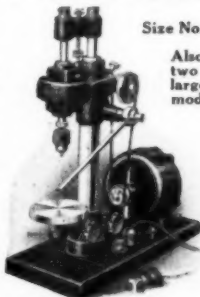
The A. M. Sensitive Drilling Machine

A self-contained, mobile bench unit of vertical type that can be used for a variety of operations coming within its capacity. Its prime purpose is drilling from .010" to sizes that can be handled on the ordinary drill press. Also adaptable for reaming, chamfering, counter-boring, burnishing, damaskeening and some classes of end milling. Economies effected by its use seldom fall under 25% and often production is doubled. Three sizes, unconditionally and permanently guaranteed against any defect.

Write for Booklet "C"

Size No. 1

Also
two
larger
models



ADOLPH MUEHLMATT
434-436 Elm St., Cincinnati, Ohio

WODACK General Purpose TOOL



**Polishes
Drills
Bufs
Grinds**

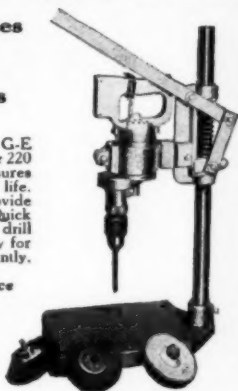
*Substantial
Dependable
Economical*

A general utility tool without equal. G-E Universal motor, d. c. or a. c., 110 or 220 volt. Oversize trigger switch insures greater dependability and longer life. Timken roller and ball bearings provide wear resistance. The WODACK Quick Change Stand shown at right holds drill vertically for drilling and horizontally for grinding, buffing, etc. Changed instantly.

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**Wodack Electric
Tool Corp.**

**4629 W. Huron St.,
Chicago, Ill.**



Threading Tool



Right Hand Off-Set Side Tool



Right Hand Turning Tool

ARMSTRONG Tool Holders

They Save—

High Speed Steel, 90%
Grinding, ----- 70%
Forging, ----- 100%

Over 100 tools for
Lathe, Planer, Shaper,
Slotter, etc., etc.

Get the free Catalog



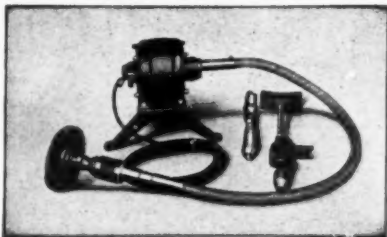
Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.

The Whirlwind Buffer and Grinder

Will cut the cost on any unhandy
grinding or polishing job



Send for our latest bulletin

Stow Flexible Shaft Co., 3454 Ludlow St.,
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The Best Since 1876

USE "D. & W." DEMAGNETIZERS!



Of unique construction, they are simple, dependable

A rigid continuous "U" shaped core, made of the highest grade laminated electrical steel, is energized by two

stationary coils, thru which alternating current is passed. Construction is similar for d. c. machine, and in addition containing a small converter.

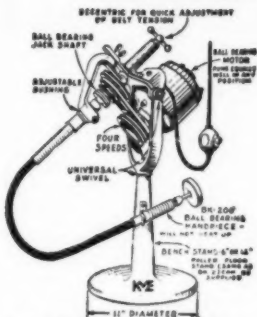


Have you any special problems in connection with the use of Magnetic Chucks? We will gladly investigate and report on same, or design a special chuck for your particular needs. *Write us today.*

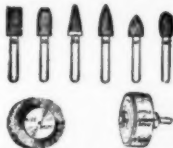
J. & H. Electric Co., 159 Clifford St.,
Providence, R. I.

The KELLERFLEX "BK"

"The Machine of 100 Uses"



$\frac{1}{4}$ — $\frac{1}{3}$ — $\frac{1}{2}$ H. P.
Speeds up to 10,500



COMPLETE LINE OF ACCESSORIES

Rotary Files—
Emery Wheels—Sanding Drums—
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Mall "Jack of All Trades"

and

Masters Them Too



Cleaning
Scraping
Filing
Sanding
Polishing
Grinding
Sawing
Finishing

Mall design and attachments adapt this machine to nearly every type of industry for eliminating hand labor.

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Mall Tool Company, 7730 So. Chicago Ave.,
Chicago, Illinois

The Spirit Of the Times



is reflected in the speed and stamina of Rockford High Duty Punch Presses.

They are built to produce and maintain Hi-Production—and they do it.

Wide range of sizes and types.

Write today for new catalog

Rockford Iron Works
Rockford, Ill.



T. H. L. Punches

Insure Continuous and Profitable Production

Because they are made of the right quality of tool steel.

Because they are hardened with every care.

Because all our experience of 35 years is centered in making them accurate, rugged and dependable.



*Large stock of regular sizes
Special sizes quickly made*

T. H. Lewthwaite Machine Co.
311 East 47th St., (Est. 1890) New York City

Template and Gauge Making Costs — Reduced To One-Tenth

Get a *Handnib*! Make your templates and gauges, and cut metal into various shapes in one-tenth the time required by older methods.

The *Handnib* can handle stock up to $\frac{1}{8}$ " in thickness—it can cut out practically any design which you might desire. Simply set it up in a *Vise* and it is ready for work.

Price, \$32.50

We also manufacture the *National Vise Shear* a very high grade portable slitting shear. It fits in any *Vise*. Complete with $\frac{5}{16}$ " rod cutter.

Price, \$27.50

Write for a Folder



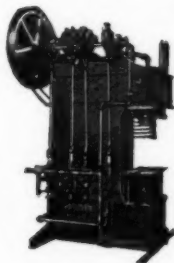
National Machine Tool Co.
1536B Clark St., :: Racine, Wis.

Lourie Hydraulic Presses

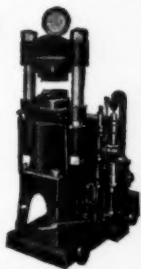
for Every
Purpose

—
High Speed
and
Heavy Duty

Write for Bulletin 40



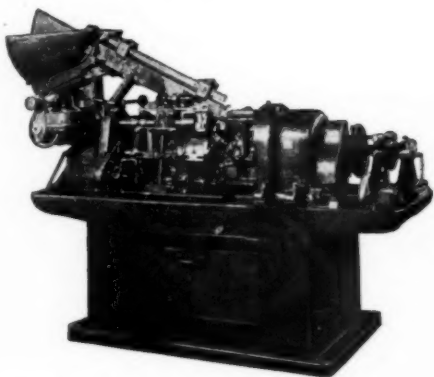
Type WK



Type AY

Lourie Manufacturing Co.
565 Washington Blvd., Chicago

Combined Automatic Pointing and Threading Machines



For Bolts and Cap Screws
Capacity— $\frac{3}{16}$ " x 1" Diameter
1" to 6" Long

Write for Full

THE ECONOMY ENGINEERING

Automatic Shaving Machines



Shaves top and underneath
head of Cap Screws

Capacity $\frac{1}{4}$ " x $\frac{3}{4}$ " Diameter
 $\frac{3}{4}$ " to $5\frac{1}{2}$ " Long

Information

COMPANY, - Willoughby, Ohio

This Drill Increased Production and Wages — and Saved

\$476.23

Per
Year



TRADE MARK
REG. U.S. PAT. OFF.

A prominent valve
manufacturer found,
after a thorough trial
of CLE-FORGE High
Speed Drills, that the drills
had accomplished three things
for him:

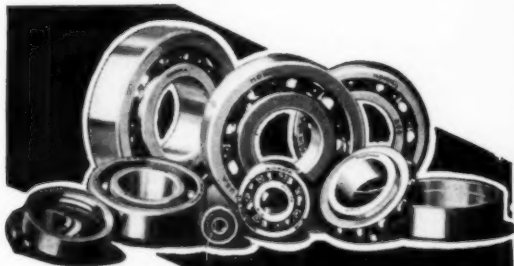
1. They increased hole produc-
tion per hole and per drill;
2. They reduced drill, machine and
labor cost by 17%;
3. And, permitted the drill press oper-
ator to earn 14½% more money.

CLE-FORGE High Speed Drills effected in this
plant a net saving of \$476.23 per year. This saving
amounted to about *five times the original cost of
the drills used!*

Full details of this interesting performance
are contained in an eight page typewritten
survey which makes interesting reading.
We shall be glad to send you this survey
upon request. Simply ask for Survey No. 58.

The **CLEVELAND** **TWIST DRILL**
CLEVELAND **COMPANY**
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TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES



NORMA-HOFFMANN

PRECISION Ball and Roller Bearings, built to meet the exacting requirements of those with whom dependable bearing performance is the one conclusive measure of bearing value.

Catalogs 904, 905, and 917

Norma-Hoffmann Bearings Corp'n.
Stamford, Conn., U. S. A.

PRECISION BEARINGS



Before any Cut

LeBlond Grinders=
Sharp Cutters

Sharp Cutters=
Maximum Production

Maximum Production=
Profits

The Universal Cutter Grinder
that Meets the Demands of
the Modern Tool Room.

THE R. K. LeBLOND MACHINE TOOL CO.
CINCINNATI, OHIO

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profits

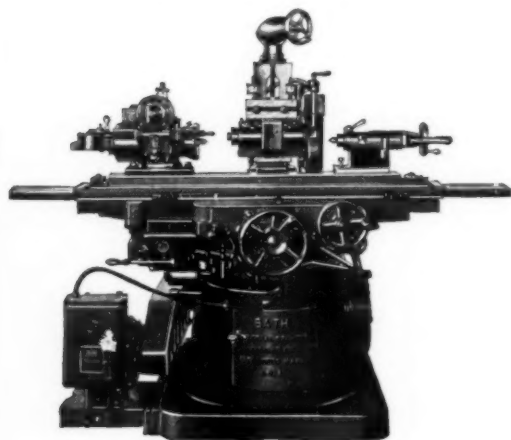
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CO.



BATH Universal Grinders

SELF CONTAINED



10"x25"

12"x36"

also

**Plain Cylindrical, Valve Seat
and Tappet Grinders**

Fitchburg Grinding Machine Corp.

Fitchburg, Mass., U. S. A.

NEW ROGERS

Segment Grinding Wheel

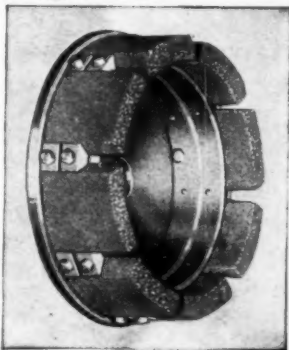
CHUCK

To facilitate faster grinding we announce a new grinding wheel chuck. The outstanding feature is the simplicity of construction, the chuck being so constructed that it can be used on face or surface grinders of any make. Adjustments for changing segments are very simple.

The chuck is now made in 3 sizes, 12", 14", and 16".

We also make a complete line of light face and knife grinders up to 13' capacity.

SAMUEL C. ROGERS & CO.
211 Dutton Ave., Buffalo, N. Y.



14" Rogers Chuck

Accuracy—Speed—Efficiency

"HOPKINS" 3-Jaw Chuck



"HOPKINS" original design, selected materials and the Dust-Proof feature guarantee continuous production at lowest costs.

Greater gripping power, lessened vibration and increased centering precision are guaranteed in each "HOPKINS" Chuck.

"HOPKINS" Two and Three Jaw Chucks are made in the following diameters: 8", 10", 12" and 14"—all carried in stock.

Write for Bulletin—No. 3-28

TOMKINS-JOHNSON CO.
600-610 Mechanic St., Jackson, Mich.

**Tight Joints
that
Swivel**



*Sample
on
Approval*

Quick-As-Wink Industrial Hose Couplings

These bronze couplings swivel freely but NEVER LEAK and can't be put out of commission. Just push together Quick-As-Wink, that's all! Can not become disconnected accidentally. Guaranteed for one year. Made in sizes from 1/8" to 4". Get descriptive bulletin and prices.

C. B. HUNT & SON - - - SALEM, OHIO

Don't Call a Gang of Men



away from their work to do the lifting and lugging of heavy pieces, when one man and a

Canton Portable Crane and Truck

can do it more quickly, more efficiently and with greater safety. **The Canton** is made in six sizes to hoist, truck and place any load up to 6,000 lbs. weight. Can be equipped now with the safety friction brake.

*It will pay you to investigate
Write today for Booklet E-8*

Canton Foundry & Machine Co.

CANTON, OHIO

New York Office: 101 West 31st Street



Atlas Arbor Presses

For All Forcing Operations

Illustration shows our No. 55 Power Drive Press, which is adaptable for fast production work and capable of supplying ten tons pressure.

*Write for our Bulletin—
showing 30 different sizes*

Atlas Press Co.

*Department B,
Kalamazoo, Michigan*

Fall River Screw Press



Here is a new screw press which is large enough and strong enough to take care of every job that comes into the average shop. It is built of high grade steel throughout, with special attention given to those parts subject to the hardest strain. 42 inches wide and table is 8 inches. Capable of exerting over 65 tons pressure.

Write for further information

Fall River Grinding & Machine Co.

JESSE ST.,

FALL RIVER, MASS.

Repay Cost 5 Times a Year

Let us tell you about the BIG
Profits in TOWSLEY Trucks



Many Sizes and Styles
from \$10 up.

Efficiency
EXPERTS
say that

TOWSLEY TRUCKS

repay their
cost every
two to three
months.

Every style
for every
need.

Write us for details of the BIG truck profits today!

John T. Towsley Mfg. Co., Cincinnati,
Ohio, U. S. A.

PIONEER TRUCK CASTERS



are constructed to carry the
HEAVIEST loads with the
least possible effort.

Made **STRONG** and **STURDY**
they will render you a long and
satisfactory service.

A caster for every industrial purpose.

Will you invest 2¢ for illustrated catalog and complete details?

Write today—you'll be glad you did.

Pioneer Caster & Mfg. Co.
ELKHART, INDIANA

Getting Light on the Subject

is Easy with an
AUTEX Extension Reel

PATENTED
Jan. 30, 1917



Type 6
MODEL 1928

It goes wherever you want or need it. Saves time and eyes, speeds up work and quickly pays for itself. Indispensable during the winter months.

ORDER NOW!

Approved by the Underwriters

Now Equipped with Rubber Covered Cord

Write for descriptive circular

The Cincinnati Specialty Mfg. Co., Inc.
1903 Powers St., Cincinnati, Ohio

MARKING DEVICES

RUBBER STAMPS



STEEL STAMPS



BURNING

BRANDS



**ETCHED METAL
NAME PLATES**



**BRASS
LABELS**



THE SCHWERDTLE STAMP CO.
BRIDGEPORT, CONN.

Keyseat Shafting

With the Burr Portable Keyseater

Anywhere—Any Position



Cuts perfect keyways up to 12" long, in shafts up to 5" in diameter. Saves expense of dismantling shafting and tearing down equipment. Made in seven sizes, hand or power driven. Over 10,000 in use.

Order One Today and Save Money!

JOHN T. BURR & SON

422 Kent Ave., Brooklyn, N. Y.

Pick and Shovel

Hammer and Chisel

Are Past History

Look At This Modern

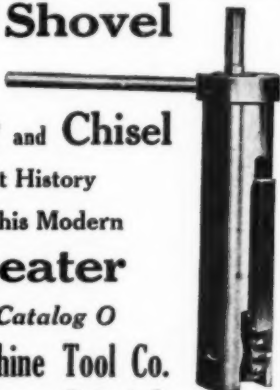
Keyseater

Send for Catalog O

National Machine Tool Co.

2268 Spring Grove Ave.,

Cincinnati, O.



Noiseless, Fast Riveting with a GRANT



Speed—One rivet per second.

Uniformity—Each rivet is finished to the exact degree of tightness or looseness you require.

Finish—Heads perfectly formed, unmutated.

GRANT ROTARY

So well adapted to difficult work that no corner is too inaccessible for it to place a rivet. Yet it is so simple in operation that a boy or girl can handle it efficiently.

*Send samples of your work
for riveting and cost estimate*

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

Vanderbeek Universal Joints



—represent the practical refinements of 25 years experience in manufacturing Universal Joints. All parts are generous sized, fully protected against dirt, and are practically self-oiling. Exceptionally strong, they transmit full power up to 70°.

Vanderbeek Joints are in daily use on thousands of machines.

*Write today for our
Descriptive Catalog.*

American Tool Works, Inc.
Hartford, Conn., U. S. A.





When a Tap Breaks —That's Enough

Your loss will stop there if you have a handy WALTON TAP EXTRACTOR in your shop.

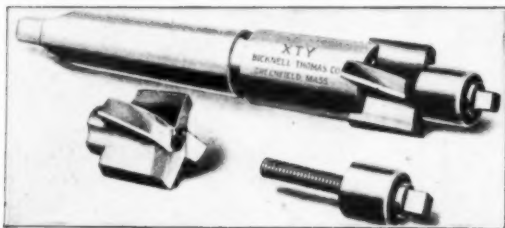
Simply insert the flutes of this time-saving tool into the broken tap, twist the end, and the tap slides out. A WALTON obviates delays and operates so simply that an apprentice can handle it.

Made in three and four-flute styles.

Let us send it to you for a sixty-day trial

The Walton Company
302 Pearl St., Hartford, Conn.

Counterbore Cutters and Holders



All Bicknell-Thomas Counterbore, Core Drill and Flue Sheet Cutters are forged and twisted while hot, increasing original strength and density of our High Speed Steel, resulting in tools unexcelled for cutting efficiency with increased number of cuts per grind. Decided advantages of the Cutters are the shearing cut—powerful drive—less re-sharpening.

Write for Illustrated Catalog

BICKNELL-THOMAS CO., Greenfield, Mass.

Reisinger Quick Adjustable Hollow-Mills

Have a graduated adjusting dial — interlocking and moving blades either way to cut smaller or larger diameters.



A clamping device operated by a lever a single move of which locks or releases all blades simultaneously.

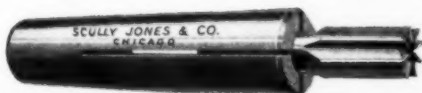
Blades are H. S. Steel

Specifications and Prices, F. O. B. Rochester, N. Y.

No.	Cutting Capacity	Price Complete	Ext. Blades Set of Four	Diam. of Std. Shanks	Larger and taper shanks furnished at small addition. Specify diameter of shank — otherwise Std. shank will be furnished.
1	$\frac{3}{32}$ to $\frac{7}{16}$	\$14.00	\$3.00	$\frac{7}{8}$	
2	$\frac{7}{16}$ to $\frac{1}{2}$	21.00	3.80	$1\frac{1}{4}$	
3	$\frac{1}{2}$ to 1	31.50	5.00	$1\frac{3}{4}$	
4	1 to $1\frac{1}{2}$	47.75	6.60	$2\frac{1}{2}$	

Reisinger Machine Tool Corp., 839 Lake Avenue, ROCHESTER, N. Y.

End Mill Economy



Make Straight Shank End Mills equal to Solid Taper Shank "SCULLY-JONES" CUTTER CHUCKS make this possible; they "CENTER BY THE SHANK" and "DRIVE BY THE SQUARE".

All sizes of CHUCKS and END MILLS in stock.
"Try the combination and be convinced."

Write for copy of our Small Tool Catalog No. 36 which completely lists and describes these tools as well as all other "SCULLY-JONES" Production Tools.

Scully-Jones & Company

Tool Division

1901 S. Rockwell St.,

Chicago, Ill.

Nicholson Expanding Mandrels



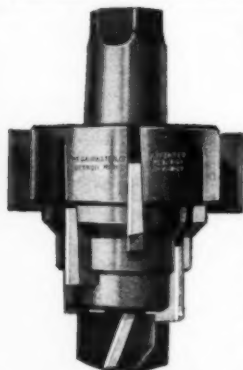
THEY are usually known among mechanics as lathe mandrels, but they work equally as well on millers or grinders. They also will take a job with a square hole as well as a round one.

Write Us for Further Information

W. H. Nicholson & Co.

117 Oregon St.,

Wilkes-Barre, Pa.



GAIRING

**MULTIPLE - OPERATION
CUTTERS**

**SOLID
AND**

INSERTED BLADE

Our business is the planning and production of end cutting tools upon which we have concentrated our thoughts and efforts for many years.

Our Technical dept. devotes its time exclusively to planning and designing tools to suit your requirements.

Send us your Blue Prints or parts to be machined, we will design and suggest tools to produce holes most economically.

No obligation, merely a willingness to be helpful. Tool Catalog and Engineering Reference mailed on request.

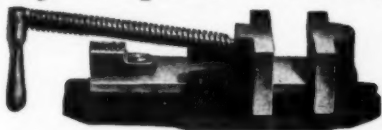
THE GAIRING TOOL COMPANY

1635-37 W. Lafayette Blvd.,

DETROIT, MICH.

Representatives In Principal Cities

Safety — Speed — Strength



(PATENT PENDING)

GREENE QUICKACTING VISE

No. 3-3'

\$6.00

No. 4-4'

\$10.00

No. 6-6'

\$20.00

Instant adjustment—positive grip obtained by use of *Special Screw and Open Nut*, the threads of which are *oppositely undercut*—no sticking—no binding—no stripping of threads. Unbreakable steel back bone for slide. Portable—suitable for bench or machine.

Write for our Special Introductory Offer

Central Distributing Co.

946 Harper Ave.,

Detroit, Mich.

Mail Orders Solicited—Agents Wanted

IF YOU TAP HOLES—



Why not have the feel of the tap right at your finger tips? A tap is a delicate tool. The Ettco Tapping Attachment taps delicately—with increased speed—That's the answer.

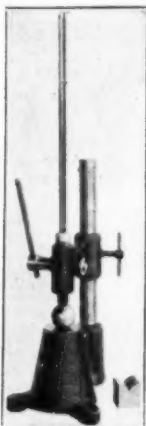
The Ettco Tapping Attachment

is simple—nothing to adjust—if the tap sticks or hits bottom the Ettco slips—the same action coming out. No clash of a positive clutch—just the smooth action of the patented leather lined cone clutch.

Sensitive—speedy—satisfactory.

No. 1—Tapping Attachment	$\frac{3}{8}$ " in steel, $\frac{1}{4}$ " in C. I.	\$35.00
No. 2—Tapping Attachment	$\frac{1}{2}$ " in steel, $\frac{3}{8}$ " in C. I.	50.00
No. 3—Tapping Attachment	$\frac{1}{2}$ " in steel, $\frac{3}{8}$ " in C. I.	80.00

Eastern Tube & Tool Co., Inc., 600 Johnson Ave.,
BROOKLYN, N. Y.



Arnold Hardness Tester

**A Portable Machine of Rugged Construction
for Reliable and Speedy Testing over a
Wide Range of Work**

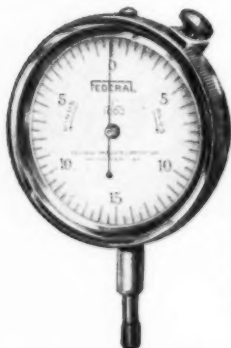
Without complicated or delicate mechanism, it is always ready for instant use.

Upkeep costs negligible. The ball is the only part subject to wear, and it can be changed in a fraction of a minute at a cost of less than one cent.

Measures hardness of raw materials in the stock room as well as finished parts, in the hands of the ordinary workman. Furnished with anvils for rounds, flats, irregular shapes and curved work.

*Worth more to you than its moderate cost
Write for more complete information*

H. H. ARNOLD CO., Inc., Rockland, Mass.



FEDERAL Dial Indicator MODEL "50"

JEWEL BEARING MOVEMENT

The Federal "Fifty" Dial Indicator is graduated to read in half thousandths (.0005") the full range being .3" or ten complete revolutions of the hand. Equipped with bezel clamp, allowing dial to be securely locked in any position desired, Details may be altered to suit your requirements.

*Write for complete details of this
and other FEDERAL models*

**Federal Products Corporation
PROVIDENCE, R. I.**

Western Branch: 7338 Woodward Ave., Detroit, Mich.

Anderson Ever Ready Balancing Ways

Exceedingly Sensitive

Easy to Manipulate



Made in six sizes to balance anything that revolves from a crank shaft to a 24,000 lb. turbine rotor. They require no special leveling, no adjustment, and no centers.

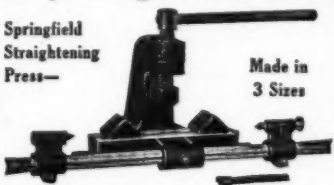
Equipped with glass-hard spindles, chilled steel discs, and especially sensitive ball bearings, to give accurate, long time service.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards	20"	30"	30"	66"	88"	20"
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	
Code	Bead	Rid	Bis	Bib	Ben	

Anderson Bros. Mfg. Co.
1915 Kishwaukee St., Rockford, Ill.

Any Length Job Straightened

**Springfield
Straightening
Press—**



**Made in
3 Sizes**

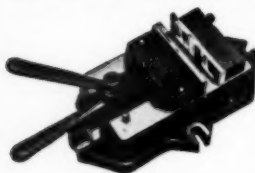
**The Acme of
Convenience
In Shop
Factory
Toolroom
Garage**

By straightening any length rough or finished work — truing sprung tools, and testing cams, crankshafts, etc., the Springfield makes itself invaluable in shop, factory, toolroom or garage. Its arrangement is the acme of convenience. It can be placed on bench, or beside lathe—saving many steps and waste handlings.

Write for folder illustrating many of its uses

The Springfield Machine Tool Company
633 West Southern Avenue, SPRINGFIELD, OHIO
We also manufacture Engine Lathes and Shapers

The Most POWERFUL Vise Made Hartford Milling Vise



Jaw width 5"
Jaw depth 1 1/4"
Maximum opening..... 3 1/2"
Weight..... 40 lbs.

Also made in the swivel-jaw type with hard or soft jaws, maximum opening 2 1/4".

The "Hartford" is designed to give the utmost in service. A lower cam-faced handle gives required quick opening and return—while a top eccentric lever-handle furnishes tremendous binding power. You can rely on "Hartford" to survive the hardest usage. Its steel parts are drop forged, hardened and ground—its base is made of special iron.

Send for descriptive catalog illustrating its usefulness

We also Build Machinery on a Contract Basis and Design and Develop
Special Automatic Machinery—Gears Cut to Order.

Hartford Special Machinery Co., 285 Homestead Ave.,
HARTFORD, CONN.

Hi-Speed Drills

One of the latest developments in advanced drill equipment is the "Buffalo" 12-inch Hi-Speed Drill, tested at 12,000 R. P. M.

An unusual feature is the self-adjusting rack and pinion. Four spindle speeds, 3,600 to 10,000 are easily obtained by means of a lever and rapid acting screw. Fully equipped with 8 sets S K F ball bearings.

Bulletins sent on request

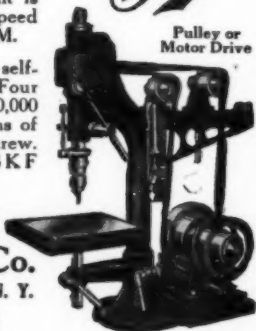
Buffalo Forge Co.

161 Mortimer St., Buffalo, N. Y.

In Canada: Canadian Blower & Forge Co., Ltd. Kitchener, Ont.

"Buffalo"

Pulley or
Motor Drive





Multiple Drilling

On Your 1-Spindle
Drilling Machine

The U. S. Multiple Drill Head converts any single spindle drill into a multiple drill press with two to six adjustable spindles that will drill any pattern while utilizing the same speeds and feeds required for drilling one hole at a time.

Send your problems to our drill-head experts. If necessary, they can design special heads with fixed or adjustable spindles to fit your needs.

The United States Drill Head Co., 1952 W. Sixth St., CINCINNATI, O.

Michigan Agents—National Sales Engineering Corp., Detroit, Mich.

The U. S. is Accurate Simple, Rugged

This completely motorized, 14" sensitive floor drill can be relied on to give accurate, sturdy service drilling holes $\frac{1}{2}$ " and smaller.

Price with motor,
switch and belts - **\$115**

Or with Counter-
shaft for Belt Drive **\$70**

Made of quality materials according to the best mechanical practise. The spindle is provided with a ball thrust bearing, and is counterbalanced by weight inside column. There is a vertical adjustment to head, and tables are adjustable to any type of work.

Let us send you full mechanical details

The U. S. Machine Tool Co.

1952 W. 6th St., Cincinnati, Ohio



SIGOURNEY Sensitive Drills

All Parts Interchangeable!

Made with 1 to 4 spindles.
Self-aligning ball bearings.

Extremely sensitive, accurate
and durable, they are *quality*
drills for those who buy tools
for what they do.

The picture shows
our No. 0 2-spindle
ball bearing Bench
Drill--a splendid tool.

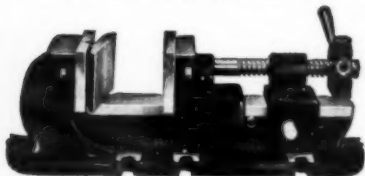


Booklets on both Plain and Ball Bearing Drills

THE SIGOURNEY TOOL CO., HARTFORD, CONN.

Gem Drill Press Vise

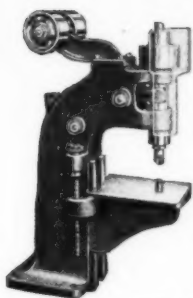
With Automatic, Quick-Acting, Powerful Grip



*Holds
Irregular
Pieces
Firmly*

The jaws are made of steel, hardened and ground, with horizontal and vertical "V" grooves. The independent swivel jaw holds taper and irregular work with a bull-dog grip. Its quick action, powerful grip and adaptability make it *the most efficient vise on the market*. Made in three sizes. Write today for folder, picturing its use in drilling and milling operations.

J. E. Martin Tool & Die Works, 528 W. State St.
Springfield, O.



For Your Small RIVETING The Linley Rotary RIVET SPINNER

- ☐ Covers a wide field of riveting.
- ☐ Simple in design but—
- ☐ Rigid and powerful.
- ☐ Guaranteed to give satisfaction.

Get the full details before
buying a riveter

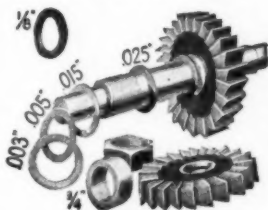
WE ALSO MANUFACTURE
EQUIPMENT FOR ROTARY
RIVET SPINNING MACHINES

SEND FOR DESCRIPTIVE FOLDER

Linley Brothers Co., 579 Fairfield Ave.,
Bridgeport, Conn.

Steel Spacing Washers—

Made of a good grade of Cold Rolled
Strip Steel, also known as Shim Steel



Stock sizes for arbors of
following diameters: $\frac{3}{8}$,
 $\frac{1}{4}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$,
 $1\frac{3}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, $1\frac{1}{2}$, 2,
 $2\frac{1}{4}$, $2\frac{1}{2}$, 3, $3\frac{1}{2}$ and 4 in.
and larger.

Stock thicknesses: .002,
.003, .004, .005, .006,
.007, .008, .010, .012,
.015, .020, .025, .032,
.047, .063, .093 and
.125 inch.

Other thicknesses up to
3.000" made to order, with
keyways if so ordered.

Ask us to send samples; you'll like them

Detroit Stamping Company
3443 West Fort St., Detroit, Mich.

GITS BROS.

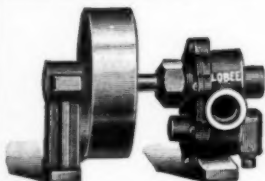
Better Oilers

287 Styles & Sizes



GITS BROS MFG. CO.
1940 S. Kilbourn Chicago,

Lobee Pumps



For
Circulating
Lubricants, Etc.
Easy To Attach.

Made For $\frac{3}{8}$ ", $\frac{1}{2}$ ", 1", $1\frac{1}{4}$ "
Standard Pipe Connections

Write for Booklet "H"

Lobee Pump & Machinery Co.

128 Dearborn St.,

BUFFALO, N. Y.

SAVE CUTTING OIL



Tolhurst Chip Wringers reclaim 6 to 15 gallons per load and handle three to four loads per hour. Basket sizes 20" to 48".

TOLHURST MACHINE WORKS, Inc., Troy, N. Y.



Opened

Opened

TUCKER

Oil Hole Covers

ALSO—HERCULES
SHEAR AND ROD CUTTERS
AND

SCREW MACHINE PRODUCTS

A Type for Every Service

Send for Catalogue No. 12



Style E



Style F

W. W. & C. F. TUCKER, INC., 612 Capitol Ave., Hartford, Conn.

FOREIGN AGENTS: Fenwick Freres & Co., Paris. Franco
Alfred Herbert, Ltd., Yokohama, Japan

Make Your Own Test at Our Expense

FREE TRIAL

BRIDGEBILT STOOL

Let us send you one of these Bridgebilt stools, express charges prepaid. Try it out under actual working conditions for 30 days, with privilege of returning it to us, express collect. Just pin your business card to this ad and mark the height stool you desire.

Mark inches ☐18 ☐20 ☐22
☐24 ☐26 ☐28 ☐30

☐FREE CATALOG

If you prefer not to send for a stool, check here and we will mail you our illustrated description of Bridgebilt Industrial Seating.



The Chicago Wire Chair Co.
616 No. LaSalle St., Chicago, Ill.

'A thorough coverage is necessary to maximum advertising results. This is a truism.

For the greatest coverage of the richest markets for machine tools and shop equipment, concentrate your advertising in

**HITCHCOCK'S
MACHINE TOOL BLUE BOOK**

The More They Have—the More They Want



Re-Orders prove the worth of
"The Handiest Rack"

Here's how one company ordered and re-ordered.

May 4	3
May 17	3
Aug. 9	4
Sept. 12	8

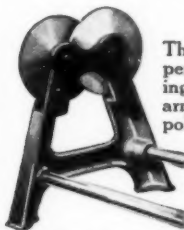
Nothing like them for storing pipe, shafting, bar stock, etc. Or for servicing machines. Keeps stock neatly piled and sorted. Saves time, space and steps.

Shipped on trial if you wish

Wm. S. Yohe Supply Co.
503 Mahoning Road, N. E., Canton, Ohio

Twentieth Century Balancing Tool

Always on the level



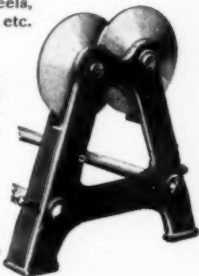
The most practical, sensitive and inexpensive device manufactured for balancing pulleys, cones, armatures, fly wheels, polishing wheels, etc.

Will set anywhere and is easily portable. In sizes

up to 24,000 pounds capacity.

Ask for the Bulletin

Sundstrand Machine Tool Co.
Rockford, Ill.



SHUR-GRIP

Solder Iron Handle

**Screws On and
STAYS ON—**

**CAN'T
COME
OFF**



**CAN'T SPLIT
STAYS COOL
WON'T BURN**

Patented April 24, 1922--No. 1,453,082

Outlasts a Dozen Ordinary Handles

YOU know you are safe if you use the HYRO Shur-Grip Soldering Iron Handle. It *can't slip*—it cuts a thread on the stem as it is screwed on, and once on stays on—you have to unscrew it to get it off. Saves time and labor—prevents accidents—comfortable to use. A trial order will convince you.



Showing inside construction of the SHUR-GRIP. The heat escapes through the hole in the direction indicated by arrows.

MADE IN THREE SIZES:

No. 7 for stem $\frac{3}{8}$ " to $\frac{1}{2}$ " dia.
(Generally 1½ to 4 lb. irons).

No. 8 for stem $\frac{1}{2}$ " to $\frac{5}{8}$ " dia.
(Generally 4 to 8 lb. irons.)

No. 9 for stem $\frac{5}{8}$ " to $\frac{3}{4}$ " dia.
(Generally 8 to 12 lb. irons).

Write Your Jobber or Direct to

Hyro Manufacturing Co., Inc.

201
Varick St.

HYRO
PRODUCTS

New York,
N. Y.

"Speed-Up Production"

Classified Finding Index

Arbors, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Angle Plates

Passman Bros., 707 W. Washington, Chicago

Auto-Gages For Dies

Danly Machine Specialties, Inc., 4918 Lincoln Ave., Chicago

Automatics

New Britain Machine Co., New Britain, Conn.

Balancing Ways

Anderson Bros. Mfg. Co., Rockford, Ill.
Sundstrand Machine Tool Co., Rockford, Ill.

Balls, Bearing and Burnishing

Abbott Ball Co., Hartford, Conn.

Band Saw Machines, for Metal

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Porter-Cable Machine Co., Syracuse, N. Y.
Racine Tool & Machine Co., Racine, Wis.

Barrels, Tumbling

Abbott Ball Co., Hartford, Conn.
Scully-Jones & Co., 1901 So. Rockwell St., Chicago

Bearings, Ball

Norma-Hoffman Bearings Corp., Stamford, Conn.

Bearings, Roller

Norma-Hoffman Bearings Corp., Stamford, Conn.

Bearings, Thrust

Norma-Hoffman Bearings Corp., Stamford, Conn.

Bench Legs, Steel

New Britain Mch. Co., New Britain, Conn.

Bending Machines, Hand and Power

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Hendley & Whittemore Co., Beloit, Wis.
Leuthwaite Mch. Co., T. H. 417E, 31st, N. Y.
Lourie Mfg. Co., 585 Washington, Chicago
Fedrick Tool & Machine Co., Philadelphia

Bending Rolls

Hendley & Whittemore Co., Beloit, Wis.

Bolt and Nut Machinery

Economy Engineering Co., Willoughby, O.
Foots-Burt Co., Cleveland, O.

Boring Bars

Fedrick Tool & Machine Co., Philadelphia

Boring Bars, Cylinder

Fedrick Tool & Machine Co., Philadelphia

Boring, Drilling & Milling Machines

Defiance Machine Co., Defiance, O.

Boring and Drilling Mchcs., Vertical

Baker Brothers, Inc., Toledo, Ohio

Boring and Turning Machines, Vertical

Cincinnati Planer Co., Cincinnati, Ohio

Boring Machines, Horizontal

Avey Drilling Machine Co., Cincinnati
Lambert Mch. & Engr'g Co., Cleveland, O.
Fedrick Tool & Machine Co., Philadelphia

Boring Tools

Maxwell Products Co., Cleveland, Ohio
Bickert-Shafer Co., Erie, Pa.

Brands, Burning

Schwerdtle Stamp Co., Bridgeport, Conn.

Bulldozers, Hydraulic

Lourie Mfg. Co., 585 Washington, Chicago

Burnishing Equipment, Ball

Abbott Ball Co., Elmwood, Conn.

Bushing Finishing Machines.

Economy Engineering Co., Willoughby, O.

Casters, Truck

Pioneer Caster & Mfg. Co., Elkhart, Ind.

Centering Machines

Sundstrand Machine Tool Co., Rockford, Ill.

Chucking Machines

New Britain Mch. Co., New Britain, Conn.
Springfield Machine Tool Co., Springfield, O.
Stevens Inc., John B., 27 Cleveland Place, New York

Chucks, Automatic and Quick Change

Procurer Safety Chuck Co., 18 S. Clinton St., Chicago

Chucks, Collet

Hardinge Brothers, Inc., 1770 Bertean Ave., Chicago
Procurer Safety Chuck Co., 18 S. Clinton St., Chicago

Chucks, Drill

Eastern Tube & Tool Co., Inc., 580 Johnson Ave., Brooklyn, N. Y.
Hartford Special Mch. Co., Hartford, Conn.
Scully-Jones & Co., 1901 So. Rockwell St., Chicago

Chucks, Drill and Tap

Hicknell-Thomas Co., Greenfield, Mass.
Procurer Safety Chuck Co., 18 S. Clinton St., Chicago
Scully-Jones & Co., 1901 So. Rockwell St., Chicago

Chucks, Keyway Cutting

Scully-Jones & Co., Ry. Exch. Bldg., Chicago

Chucks, Lathes

Stevens Inc., John B., 27 Cleveland Place, New York
Tomkins-Johnson Co., Jackson, Mich.
United Hardware & Tool Corp., 50 Howard St., New York

Chucks, Magnetic

J. & H. Electric Co., Providence, R. I.

Chucks, Oval

Frew Machine Co., Philadelphia, Pa.

Chucks, Segment Wheel

Rogers & Co., Samuel C., Buffalo, N. Y.

Clamps, Die

Danly Machine Specialties, Inc., 4918 Lincoln Ave., Chicago

Clutches, Friction

Carroll Mfg. Co., L. W., Cincinnati, Ohio
Conway Clutch Co., Cincinnati, O.
Edgemont Machine Co., Dayton, O.
Foots Bros. Gear & Machine Co., 213 Curtis, Chicago
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago

Cold Saws

Burke Machine Tool Co., Conneaut, Ohio

Collets

Hardinge Brothers, Inc., 1770 Bertean Ave., Chicago

Comparators

Federal Products Corp., Providence, R. I.

Contract Work Wanted

Burke Machine Tool Co., Conneaut, O.

Core Drills

Hicknell-Thomas Co., Greenfield, Mass.
Gairing Tool Co., Detroit, Mich.

Counterbores and Spot Facers

Hicknell-Thomas Co., Greenfield, Mass.
Gairing Tool Co., Detroit, Mich.
Giesler Co., J. C., Detroit, Mich.

Classified Finding Index

Couplings, Flexible

Foots Bros. Gear & Machine Co., 213 Curtin St., Chicago
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago
Nicholson Co., W. H., Wilkes-Barre, Pa.

Couplings, Friction Clutch

Conway Clutch Co., Cincinnati, O.

Couplings, Shaft

Nicholson Co., W. H., Wilkes-Barre, Pa.

Cranes, Portable

Canedy-Otto Mfg. Co., Chicago Heights
Canton Foundry & Mch. Co., Canton, Ohio

Crank Pin Turning Machine

Fedrick Tool & Machine Co., Philadelphia

Cutters, Keyseater

Davin Keyseater Co., Rochester, N. Y.
Scully-Jones & Co., 1901 So. Rockwell St., Chicago

Cutters, Milling

Brown & Sharpe Mfg. Co., Providence, R. I.
Genesee Mfg. Co., Rochester, N. Y.
Reisinger Mch. Tool Corp., Rochester, N. Y.

Cylinder Boring Machines, Portable

Fedrick Tool & Machine Co., Philadelphia

Demagnetizers

J. & H. Electric Co., Providence, R. I.

Dial Indicators

Federal Products Corp., Providence, R. I.

Die Making Machines

Oliver Instrument Co., Adrian, Mich.

Dies, Automatic Self-Opening

Rickert-Shafer Co., Erie, Pa.

Die Sets

Daily Machine Specialties, Inc., 1818 Lincoln Ave., Chicago

Die Sinking and Engraving Machines

Keller Mch. Eng. Corp., 58A Washington St., Brooklyn, N. Y.

Discs, Machine Steel

Fassman Bros., 707 W. Washington, Chicago

Dividing Heads

Stevens Inc., John B., 27 Cleveland Place, New York

Drill Racks

Peoria Machine Co., Racine, Wis.

Drilling Heads, Multiple

National Automatic Tool Co., Richmond, Ind.
United States Drill Head Co., Cincinnati

Drilling Machines, Automatic

Baker Brothers Inc., Toledo, Ohio.
National Automatic Tool Co., Richmond, Ind.

Drilling Machines, Bench

Avey Drilling Machine Co., Cincinnati
Buffalo Forge Co., Buffalo, N. Y.
Burke Machine Tool Co., Conneaut, Ohio
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
National Automatic Tool Co., Richmond, Ind.
National Elect. Prod. Co., 148 Baxter, N.Y.
Sigourney Tool Co., Hartford, Conn.
Stecher Co., Chas., 2452 N. Greenview Ave., Chicago

Taylor & Fenn Co., Hartford, Conn.
Winterhoff Tool & Machine Co., Elkhart, Ind.

Drilling Machines, Borer

Cincinnati Bickford Tool Co., Oakley, Cincinnati, Ohio
National Elect. Prod. Co., 148 Baxter, N.Y.

Drilling Machines, Gang

Baker Brothers Inc., Toledo, Ohio.
Cincinnati Bickford Tool Co., Oakley, Cincinnati, Ohio

Drilling Machines, Horizontal

Frew Machine Co., Philadelphia, Pa.
National Automatic Tool Co., Richmond, Ind.
National Elect. Prod. Co., 148 Baxter, N.Y.
Stevens Inc., John B., 27 Cleveland Place, New York

Drilling Machines, Multiple Spindle

Avey Drilling Machine Co., Cincinnati
Baker Brothers Inc., Toledo, Ohio.
Cincinnati Bickford Tool Co., Oakley, Cincinnati, Ohio
Foots-Burt Co., Cleveland, O.
National Automatic Tool Co., Richmond, Ind.
National Elect. Prod. Co., 148 Baxter, N.Y.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Portable Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Hisey-Wolf Machine Co., Cincinnati, O.
Mail Tool Co., 7730 S. Chicago Ave., Chicago
National Elect. Prod. Co., 148 Baxter, N.Y.
Standard Electrical Tool Co., Cincinnati, O.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chicago
Vim Tool Co., 149 Broadway, New York
Winterhoff Tool & Machine Co., Elkhart, Ind.
Woodack Electric Tool Corp., 4629 W. Huron St., Chicago

Drilling Machines, Post

Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Hammond Mfg. Co., Cleveland, Ohio.
National Elect. Prod. Co., 148 Baxter, N.Y.

Drilling Machines, Radial

American Tool Works Co., Cincinnati, O.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Cincinnati Bickford Tool Co., Oakley, Cincinnati, Ohio
Drees Machine Tool Co., Cincinnati, O.
Hammond Mfg. Co., Cleveland, Ohio.
National Elect. Prod. Co., 148 Baxter, N.Y.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Sensitive

Avey Drilling Machine Co., Cincinnati
Baker Brothers Inc., Toledo, Ohio.
Buffalo Forge Co., Buffalo, N. Y.
Burke Machine Tool Co., Conneaut, Ohio
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Foots-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Muehlmann, Adolph, Cincinnati, O.
National Elect. Prod. Co., 148 Baxter, N.Y.
Sigourney Tool Co., Hartford, Conn.
Stecher Co., Chas., 2452 N. Greenview Ave., Chicago
Taylor & Fenn Co., Hartford, Conn.
U. S. Machine Tool Co., Cincinnati, O.

Drilling Machines, Vertical

Avey Drilling Machine Co., Cincinnati
Buffalo Forge Co., Buffalo, N. Y.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Cincinnati Bickford Tool Co., Oakley, Cincinnati, Ohio
Foots-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Marsh Machinery Co., A. R., Cleveland, Ohio
National Automatic Tool Co., Richmond, Ind.
National Elect. Prod. Co., 148 Baxter, N.Y.
Oesterlein Machine Co., Cincinnati, Ohio
Sigourney Tool Co., Hartford, Conn.
Standard Electrical Tool Co., Cincinnati, O.
Stecher Co., Chas., 2452 N. Greenview Ave., Chicago
Taylor & Fenn Co., Hartford, Conn.

Drills, Twist

Cleveland Twist Drill Co., Cleveland, Ohio.

Emery Stands

Carroll Mfg. Co., L. W., Cincinnati, Ohio

Emery Wheel Dressers and Cutters

Taylor & Fenn Co., Hartford, Conn.
Western Tool & Mfg. Co., Springfield, O.

Classified Finding Index

Engravers, Mechanical and Hand

Schwerdtle Stamp Co., Bridgeport, Conn.

Etching Machines, Electric

Brewster Co., Wm., Inc., 60 Church St., New York
Luma Electric Equipment Co., Toledo, Ohio.

Feeders, Oil and Soda Water

New Britain Machine Co., New Britain, Conn.

Filing Machines

LaPorte Machine & Tool Co., LaPorte, Ind.
Oliver Instrument Co., Adrian, Mich.
Wardwell Mfg. Co., Cleveland, O.

Filing and Sawing Machines

LaPorte Machine & Tool Co., LaPorte, Ind.

Flexible Shaft Machinery

Keller Mech. Eng. Corp., 68A Washington St., Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave., Chicago

Flue Sheet Tools

Ricknell-Thomas Co., Greenfield, Mass.

Forges

Canedy-Otto Mfg. Co., Chicago Heights, Ill.

Forgings, Hollow Bored

American Hollow Boring Co., Erie, Pa.

Furniture, Machine Shop

New Britain Machine Co., New Britain, Conn.
Western Tool & Mfg. Co., Springfield, O.

Gauges, Cylindrical and Thread

Federal Products Corp., Providence, R. I.

Gauges, Taper

Hartford Special Mch. Co., Hartford, Conn.

Gear Cutters

Brown & Sharpe Mfg. Co., Providence, R. I.
Triplex Machine Tool Corp., 60 Church St., New York

Gear Generators

Lees-Bradner Co., Cleveland, Ohio

Gear Grinders

Lees-Bradner Co., Cleveland, Ohio

Gear Hobbers

Triplex Machine Tool Corp., 60 Church St., New York

Gear Testers

Lees-Bradner Co., Cleveland, Ohio

Gears

Boston Gear Works Sales Company, Norfolk Downs, Mass.
Chicago Stock Gear Works, 105 S. Jefferson, Chicago
Foote Bros. Gear & Machine Co., 213 Curtiss St., Chicago
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago
Massachusetts Gear & T. Co., Woburn, Mass.

Grinding Machines, Belt

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Peerless Surfacing Machine Co., Troy, N. Y.
Wall Sales Corp., 96 Warren St., New York

Grinding Machines, Bench

Carroll Mfg. Co., L. W., Cincinnati, Ohio
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hill-Curtis Co., Kalamazoo, Mich.
Hisey-Wolf Machine Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Cutter, Reamer and Tool

Brown & Sharpe Mfg. Co., Providence, R. I.
Gallmeyer & Livingston Co., Grand Rapids, Mich.

Jarecki Mch. & T. Co., Grand Rapids, Mich.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
National Machine Tool Co., Racine, Wis.
Osterlein Machine Co., Cincinnati, Ohio
Oliver Instrument Co., Adrian, Mich.
Stevens Inc., John B., 27 Cleveland Place, New York

Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Cylindrical

Brown & Sharpe Mfg. Co., Providence, R. I.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Die

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Disc

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Porter Cable Machine Co., Syracuse, N. Y.

Grinding Machines, Drill

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Oliver Instrument Co., Adrian, Mich.

Grinding Machines, Face

Rogers & Co., Samuel C., Buffalo, N. Y.
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Flexible Shaft

Keller Mech. Eng. Corp., 68A Washington St., Brooklyn, N. Y.

Grinding Machines, Internal

Mall Tool Co., 8389 S. Chicago Ave., Chicago
National Machine Tool Co., Racine, Wis.
Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Knife and Shear Blade

Rogers & Co., Samuel C., Buffalo, N. Y.

Grinding Machines, Portable Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Hisey-Wolf Machine Co., Cincinnati, O.
Keller Mech. Eng. Co., 68A Washington St., Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave., Chicago
National Machine Tool Co., Racine, Wis.
Porter Cable Machine Co., Syracuse, N. Y.
Rogers & Co., Samuel C., Buffalo, N. Y.
Standard Electrical Tool Co., Cincinnati, O.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chicago
Vim Tool Co., 149 Broadway, New York
Wodack Electric Tool Corp., 4623 W. Huron St., Chicago.

Grinding Machines, Snagging

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hill-Curtis Co., Kalamazoo, Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.

Grinding Machines, Surface

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Illinois Machine & Mfg. Co., LaSalle, Ill.
Rogers & Co., Samuel C., Buffalo, N. Y.
Stevens Inc., John B., 27 Cleveland Place, New York
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Tap

Gallmeyer & Livingston Co., Grand Rapids, Mich.

Grinding Machines, Tool

Hill-Curtis Co., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Universal

Brown & Sharpe Mfg. Co., Providence, R. I.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Classified Finding Index

Hack Saw Blades

Armstrong-Bloom Mfg. Co., 341 N. Francisco Ave., Chicago

Puerlein Machine Co., Racine, Wis.
Racine Tool & Machine Co., Racine, Wis.
Victor Saw Works, Inc., Middletown, N. Y.

Hack Saw Machines

Armstrong-Bloom Mfg. Co., 341 N. Francisco Ave., Chicago

Puerlein Machine Co., Racine, Wis.
Racine Tool & Machine Co., Racine, Wis.

Hammers, Electric Drill

Wedack Electric Tool Corp., 4629 W. Huron St., Chicago

Handles, File

Hyro Mfg. Co., 200 Varick St., New York

Handles, Soldering Iron

Hyro Mfg. Co., 200 Varick St., New York

Hardness Testers

Arnold Co., H. H., Inc., Rockland, Mass.
Wilson-Maclean Co., Inc., 735 E. 43rd St., New York

Hub Grinders

Triplex Machine Tool Corp., 50 Church St., New York

Hoists, Portable

Canton Foundry & Machine Co., Canton, Ohio

Hose Couplings

Hunt & Son, C. B., Salem, Ohio

Hydraulic Machinery

Louis Mfg. Co., 555 Washington, Chicago

Index Centers, Single and Multi Spill

Brown & Sharpe Mfg. Co., Providence, R. I.
Fay & Scott, Dexter, Maine
Stevens Inc., John B., 27 Cleveland Place, New York

Jigs and Fixtures

Hartford Special Mch. Co., Hartford, Conn.

Keyseating Machines

Baker Brothers, Inc., Toledo, Ohio.
Burr & Son, John T., Brooklyn, N. Y.
Chattanooga Mch. Co., Chattanooga, Tenn.
Davis Keyseater Co., Rochester, N. Y.
National Machine Tool Co., Cincinnati

Lathe Accessories and Attachments

Cincinnati Lathe & Tool Co., Cincinnati, Ohio
Dalton Tool & Mch. Corp., 8 W. 40th, N. Y.
Fay & Scott, Dexter, Maine
Maxwell Products Co., Cleveland, Ohio
Sidney Machine Tool Co., Sidney, Ohio

Lathe Turrets

Maxwell Products Co., Cleveland, O.

Lathe, Bench

Dalton Tool & Mch. Corp., 8 W. 40th, N. Y.
Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago
Monarch Machine Tool Co., Sidney, O.

Lathe, Combination for Milling,

Drilling and Tapping

Dalton Tool & Mch. Corp., 8 W. 40th, N. Y.

Lathe, Engine

American Tool Works Co., Cincinnati, O.
Bradford Machine Tool Co., Cincinnati, O.
Carroll Mch. Tool Co., A. V., Cincinnati, O.
Carroll & Jamieson Mch. Tool Co., Batavia, O.
Cincinnati Lathe & Tool Co., Cincinnati, O.
Fay & Scott, Dexter, Maine
Hamilton Tool Co., Hamilton, O.
Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
McCabe Lathe & Machinery Corp., J. J., 149 Broadway, New York
Monarch Machine Tool Co., Sidney, O.
Porter-Cable Machine Co., Syracuse, N. Y.

Sebastian Lathe Co., Cincinnati, Ohio
Sidney Machine Tool Co., Sidney, Ohio
Springfield Machine Tool Co., Springfield, O.

Lathe, Extension Bed Gap

LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Rahn-Larson Co., Cincinnati, O.

Lathe, Gap

Carroll Mch. Tool Co., A. V., Cincinnati, O.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Lathe, Hand

Stevens Inc., John B., 27 Cleveland Place, New York

Lathe, Manufacturing

Cincinnati Lathe & Tool Co., Cincinnati, Ohio
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Sundstrand Machine Tool Co., Rockford, Ill.

Lathe, Precision

Cincinnati Lathe & Tool Co., Cincinnati, Ohio
LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Lathe, Short Bed

Dalton Tool & Mch. Corp., 8 W. 40th, N. Y.
Monarch Machine Tool Co., Sidney, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Sidney Machine Tool Co., Sidney, Ohio

Lathe, Tool Room

Cincinnati Lathe & Tool Co., Cincinnati, Ohio
Cisco Machine Tool Co., Cincinnati, Ohio

Lathe, Turret

Bradford Machine Tool Co., Cincinnati, O.
Cincinnati Lathe & Tool Co., Cincinnati, Ohio
Monarch Machine Tool Co., Sidney, O.

Mandrels, Expanding

Nicholson & Co., W. H., Wilkes-Barre, Pa.
Western Tool & Mfg. Co., Springfield, O.

Mandrels, Hollow

Hyro Mfg. Co., 200 Varick St., New York

Mandrels, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Milling Attachments

Brown & Sharpe Mfg. Co., Providence, R. I.
Burke Machine Tool Co., Connecticut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Oesterlein Machine Co., Cincinnati, Ohio
Porter-Cable Machine Co., Syracuse, N. Y.
Stevens Inc., John B., 27 Cleveland Place, New York

Taylor & Fenn Co., Hartford, Conn.

Milling Machine Spacing Washers

Maxwell Products Co., Cleveland, Ohio

Milling Machines, Bench

Burke Machine Tool Co., Connecticut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Cam

Frew Machine Co., Philadelphia, Pa.

Milling Machines, Hand

Burke Machine Tool Co., Connecticut, Ohio
Frew Machine Co., Philadelphia, Pa.
Sundstrand Machine Tool Co., Rockford, Ill.
Superior Machine & Eng. Co., Detroit, Mich.
U. S. Machine Tool Co., Cincinnati, O.

Milling Machines, Horizontal

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Manufacturing

Kearney & Trecker Corp., Milwaukee, Wis.

Milling Machines, Plain

Brown & Sharpe Mfg. Co., Providence, R. I.
Burke Machine Tool Co., Connecticut, Ohio
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Sundstrand Machine Tool Co., Rockford, Ill.

Classified Finding Index

Milling Machines, Portable
 Pedrick Tool & Machine Co., Philadelphia

Milling Machines, Spline
 Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal
 Brown & Sharpe Mfg. Co., Providence, R. I.
 Kearney & Trecker Corp., Milwaukee, Wis.
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Milling Machines, Vertical
 Brown & Sharpe Mfg. Co., Providence, R. I.
 Hurks Machine Tool Co., Conneaut, Ohio
 Kearney & Trecker Corp., Milwaukee, Wis.
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
 Taylor & Fenn Co., Hartford, Conn.

Mills, Adjustable Hollow
 Genesee Mfg. Co., Rochester, N. Y.
 Heislinger Mch. Tool Corp., Rochester, N. Y.

Mortisers, Electric Hand
 Woodack Electric Tool Corp., 4629 W. Huron
 St., Chicago.

Name Plates, Etched and Stamped
 Schwerdtle Stamp Co., Bridgeport, Conn.

Nut Setters, Electric
 Vim Tool Co., 149 Broadway, New York
 Woodack Electric Tool Corp., 4629 W. Huron
 St., Chicago.

Oil Cups
 Gits Bros. Mfg. Co., 1949 S. Elmhurst Ave.,
 Chicago
 Tucker, W. W. & C. F., Hartford, Conn.

Oil Extractors
 Telhurst Machine Works, Troy, N. Y.

Oil Hole Covers
 Tucker, W. W. & C. F., Inc., Hartford, Conn.

Pattern Shop Machinery
 Towley Mfg. Co., John T., Cincinnati

Pins, Leader And Dowel
 Dandy Machine Specialties, Inc., 4913 Lincoln
 Ave., Chicago

Pipe Bending Machines
 Pedrick Tool & Machine Co., Philadelphia

Planers, Valve Seat, Portable
 Pedrick Tool & Machine Co., Philadelphia

Planing Machines
 Cincinnati Planer Co., Cincinnati, Ohio
 Cleveland Planer Co., Cleveland, Ohio

Point Thinning Machines
 Oliver Instrument Co., Adrian, Mich.

Polishing and Buffing Machines
 Cincinnati Electrical Tool Co., Cincinnati, O.
 Excelsior Tool & Mch. Co., E. St. Louis, Ill.
 Hill-Curtis Co., Kalamazoo, Mich.
 Hisey-Wolf Machine Co., Cincinnati, O.
 Mail Tool Co., 7730 S. Chicago Ave., Chicago
 New Britain Machine Co., New Britain, Conn.
 North Side Tool Co., Dayton, Ohio
 Standard Electrical Tool Co., Cincinnati, O.

Presses, Arbor
 Atlas Press Co., Kalamazoo, Mich.
 Lourie Mfg. Co., 565 Washington, Chicago
 Nicholson & Co., W. H., Wilkes-Barre, Pa.
 Sheldon Machine Co., 8253 Cottage Grove
 Ave., Chicago
 Wilson, R. K., Buffalo, N. Y.

Presses, Broaching
 Lourie Mfg. Co., 565 Washington, Chicago

Presses, Drawing
 Lourie Mfg. Co., 565 Washington, Chicago

Presses, Flanging
 Lourie Mfg. Co., 565 Washington, Chicago

Presses, Foot
 Rockford Iron Works, Rockford, Ill.
 Taylor & Fenn Co., Hartford, Conn.

Presses, Forcing
 Lourie Mfg. Co., 565 Washington, Chicago

Presses, Forming
 Lourie Mfg. Co., 565 Washington, Chicago

Presses, Power
 Hendley & Whittemore Co., Beloit, Wis.
 Lourie Mfg. Co., 565 Washington, Chicago
 Rockford Iron Works, Rockford, Ill.

Presses, Punch
 Leathwaite Mch. Co., T. H., 417 E. 81st., N. Y.
 Rockford Iron Works, Rockford, Ill.

Presses, Screw
 Fall River Grinding & Machine Co., Fall
 River, Mass.
 Jarecki Mch. & T. Co., Grand Rapids, Mich.
 Towley Mfg. Co., John T., Cincinnati

Presses, Wheel
 Lourie Mfg. Co., 565 Washington, Chicago

Profiling Machines
 Fraw Machine Co., Philadelphia, Pa.
 Oliver Instrument Co., Adrian, Mich.

Pulley Machinery
 Avey Drilling Machine Co., Cincinnati

Pulleys, Iron, Solid and Split
 Genway Clutch Co., Cincinnati, O.

Pumps, Coolant
 Fulflo Specialties Co., Blauvelt, O.
 Lobee Pump & Mch. Co., Buffalo, N. Y.

Pumps, Hydraulic
 Lobee Pump & Mch. Co., Buffalo, N. Y.
 Lourie Mfg. Co., 565 Washington, Chicago

Pumps, Lubricant
 Rithman Machinery Co., Cincinnati, O.

Punch Press Feeds
 Rockford Iron Works, Rockford, Ill.
 Wittke Mfg. Co., 2532 S. Kedzie Ave.,
 Chicago

Punch, Shear and Bender, Hand
 Armstrong-Blum Mfg. Co., 341 N. Francisco
 Ave., Chicago

Punches, Hand
 Armstrong-Blum Mfg. Co., 341 N. Francisco
 Ave., Chicago
 Blum & Co., J., 532 W. 22nd, New York
 Hendley & Whittemore Co., Beloit, Wis.
 Hyro Mfg. Co., 200 Varick St., New York
 Leathwaite Mch. Co., T. H., 417 E. 81st St.,
 New York
 Whitney Metal Tool Co., Rockford, Ill.

Punches, Power
 Hendley & Whittemore Co., Beloit, Wis.

Punches and Dies
 Hendley & Whittemore Co., Beloit, Wis.
 Leathwaite Mch. Co., T. H., 417 E. 81st., N. Y.
 Rockford Iron Works, Rockford, Ill.

Punches and Shears
 Excelsior Tool & Mch. Co., E. St. Louis, Ill.

Pyrometers
 Wilson-Maculien Co., Inc., 736 E. 143rd St.,
 New York

Racks, Bar Stock
 New Britain Machine Co., New Britain, Conn.
 Yale Supply Co., Wm. S., Canton, O.

Reamers, Adjustable
 Cleveland Twist Drill Co., Cleveland, Ohio.
 Schellenbach-Hunt Tool Co., Cincinnati, O.

Classified Finding Index

- Reamers, Expanding**
Lambert Mch. & Engr'g Co., Cleveland, O.
- Reamer Holders**
Nicholson & Co., W. H., Wilkesbarre, Pa.
- Reels, Extension**
Cincinnati Specialty Mfg. Co., Cincinnati, O.
- Riveting Machine Equipment**
Lintey Bros. Co., Bridgeport, Conn.
- Riveting Machines**
Grant Mfg. & Mch. Co., Bridgeport, Conn.
- Rod Cutters**
Armstrong-Blum Mfg. Co., 341 N. Francisco
Av., Chicago
- Hendley & Whittemore Co., Beloit, Wis.
Leathwaite Mch. Co., T. H., 417 E. 31st, N. Y.
Tucker, W. W. & C. F., Inc., Hartford, Conn.
- Rotary Tables, Hand Feed**
Stevens Inc., John B., 27 Cleveland Place,
New York
- Saw Sharpening Machines**
Huther Bros. Saw Mfg. Co., Rochester, N. Y.
Rogers & Co., Samuel C., Buffalo, N. Y.
Wardwell Mfg. Co., Cleveland, O.
- Saws, Electric Hand**
Wodack Electric Tool Corp., 4639 W. Huron
St., Chicago
- Saws, Metal Cutting Circular and Band**
Huther Bros. Saw Mfg. Co., Rochester, N. Y.
- Scraping Machines, Hand & Pneumatic**
Anderson Brothers Mfg. Co., Rockford, Ill.
- Screw Drivers, Electric**
Hisey Wolf Machine Co., Cincinnati, O.
Vim Tool Co., 149 Broadway, New York
- Screw Driving Machines, Automatic**
Reynolds Machine Co., Massillon, Ohio
- Screw Machines, Automatic**
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- Shafts, Flexible**
Keller Mech. Eng. Corp., 58A Washington St.,
Brooklyn, N. Y.
- Mall Tool Co., 7730 S. Chicago Ave., Chgo.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chgo.
- Shafts, Steel**
American Hollow Boring Co., Erie, Pa.
- Shaping Machines**
American Tool Works Co., Cincinnati, O.
Osborne & Sexton Machy. Co., Columbus, O.
Rhodes Mfg. Co., Hartford, Conn.
Smith & Mills Co., Cincinnati
Springfield Machine Tool Co., Springfield, O.
- Shears, Alligator**
Canton Foundry & Machine Co., Canton, O.
- Shears, Hand**
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Av., Chicago
- Blum & Co., J., 632 W. 22nd, New York
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St., New York
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The Unishear Co., 270 Lafayette, New York
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Rhodes Mfg. Co., Hartford, Conn.
- Slotting Machines, Screw Head**
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New York
- Spacing Washers**
Detroit Stamping Co., Detroit, Mich.
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- Illinois Machine & Mfg. Co., LaSalle, Ill.
Stecher Co., Chas., 3452 N. Greenview Ave.,
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- Superior Machine & Eng. Co., Detroit, Mich.
- Speed Reducers**
Foots Bros. Gear & Machine Co., 213 Curtis
St., Chicago
- Jones Foundry & Machine Co., W. A.,
4450 W. Roosevelt Road, Chicago
- Sprockets**
Foots Bros. Gear & Machine Co., 213 Curtis
St., Chicago
- Jones Foundry & Machine Co., W. A.,
4450 W. Roosevelt Road, Chicago
- Massachusetts Gear & T. Co., Woburn, Mass.
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Schwerdtle Stamp Co., Bridgeport, Conn.
- Stencils, Brass and Oil Board**
Schwerdtle Stamp Co., Bridgeport, Conn.
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- Stud Setters**
Procunier Safety Chuck Co., 15 S. Clinton
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- Tap Extractors**
Walton Co., Hartford, Conn.
- Tap Holders**
Rickert-Thomas Co., Greenfield, Mass.
Procunier Safety Chuck Co., 15 S. Clinton
St., Chicago
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Ayer Drilling Machine Co., Cincinnati
Baker Brothers, Inc., Toledo, Ohio.
Rickert-Thomas Co., Greenfield, Mass.
Burke Machine Tool Co., Conneaut, Ohio
Eastern Tube & Tool Co., Inc., 580 Johnson
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- Frew Machine Co., Philadelphia, Pa.
Hammond Mfg. Co., Cleveland, Ohio
Leland-Gifford Co., Worcester, Mass.
Procunier Safety Chuck Co., 15 S. Clinton
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Chicago

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Bld., Chicago
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Av., Chicago
Central Distributing Co., Detroit, Mich.
Marsh Machinery Co., A. R., Cleveland, Ohio
Martin Tool & Die Works, J. R., Springfield, O.
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Vises, Machinists'

New Britain Machine Co., New Britain, Conn.
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago
Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine

Hartford Special Mch. Co., Hartford, Conn.
Marsh Machinery Co., A. R., Cleveland, Ohio
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago
Stevens Inc., John B., 27 Cleveland Place,
New York

Vises, Shaper

Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

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Porter-Cable Machine Co., Syracuse, N. Y.
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Worms

Massachusetts Gear & T. Co., Woburn, Mass.

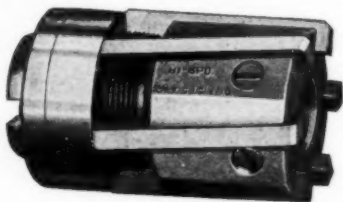
Wrenches, Nut

Greene, Tweed & Co., 109 Duane St., N. Y.

Wrenches, Ratchet

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"X-L" Adjustable Inserted Spiral Blade Shell and Machine Reamer



Reamers made with Left Hand Angle Cutting Blades do not dig in, and all chatter is eliminated. This means free, clean cutting, smooth holes, and increased production.

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This is a real production reamer. The left hand helical flutes cut fast and clean. Made only in high speed steel. Made with straight and tapered shanks.



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Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of **55 cents a line**, across the page, each issue, plus **\$2.75** for name and address. Minimum charge, **\$5.50**. No display permitted.

Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the blank enclosed to make known your wants in either new or used machinery, and the publisher will pass them along to advertisers.

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One brand new brass lined 150-ton hydraulic wheel press, complete and ready to run, for little more than half price.

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Automatic screw machine, 4" Gridley, 4-spindle, complete.....\$ 650.
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Miller, No. 3 Cincinnati plain, s. p. d.....1,100.
Miller, No. 2 1/2 LeBlond universal, dividing heads, vertical attachment. 1,000.
Miller, No. 1 Kempsmith universal, dividing heads, like new.....950.
Press, No. 6 Adiance, o. b. i., weight 5500 lbs.....700.
Shaper, 20" Stockbridge heavy duty, 90% new.....675.

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Drill, Leland-Gifford 3/4" cap. b. b. | m., 550-3-60.
ped., 10000 r. p. m. | Oven furnace, No. 16 American.
Forge, American No. 2 gas. | Shaper, 20" Smith & Mills, b. g.
Lathe, 12"x6' Hendey, c. r. taper. | Tapping mche., No. 1 Garvin auto.

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zontal, 5" bar; 60" Bullard motor | column, roller feed, 2 1/2" stroke.
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Grinders, No. 7 Gardner b. b., d. e., | Punch and shears, No. 5 Southwark,
univ. tbl; Nos. 26-18" Besiy dbl. | 48 throat, arct. jaw, m. d., No. 2
spdl. disc, complete; Dumore. | L. & A.; Nos. 52 and 54 Beloit.
Miller, 40" Ohio, auto. rotary. | Riveters, 3-A, 4-A & 5-A, high spd.
Planers, 60x60x18' Gray, 2 heads. | Screw machine, 3 1/2" Gridley, single
Presses & pumps, hydraulic, 300 ton | spindle.
Perrin, 2-15 ton, comp. with pumps, | Shears, Kling splitting, 4" cap.

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1-2", 5 hole turret.	1-1", type B.
1-2", 5 hole turret.	4-1", type B, 1" heads on 1" machines—these have magazines.
1-1 1/4", 5 hole turret.	

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Auto. screw mach., B. & S. No. 19, h. s.	\$ 500.
Auto. screw mach., B. & S. No. 00, with slotting attachment	400.
Auto. screw mach., B. & S. No. 0, without slotting	500.
Auto. screw mach., Cincinnati, 5-spindle, 1"	900.
Auto. screw mach., Cleveland, 1", Model A	150.
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Boring mill, 34" Rogers, with single turret head	350.
Boring mill, Morris horiz., motor drive, 1-15/16" spindle	1,000.
Centering machine, Whiton swivel	75.
Drill, 21" Cincinnati sta. head, with tapping attachment	200.
Drill, 1-spindle Allen h. s., b. b., 14" with pump	125.
Drill, 4-spindle Barr, plain bearing	225.
Drill, radial, 3" American sensitive	200.
Drill, radial 3" American plain cone drive, with tapping attachment	600.
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Filing machine, Cochrane-Bly, floor type	100.
Grinder, 26" Valley City disc	250.
Grinder, No. 65 Heald, with fixtures, b. b. spindle	900.
Grinder, new No. 2 Acme full universal 1400 lbs.	500.
Grinder, No. 2 B. & S. surface, no mag. chuck	375.
Hammer, 50 lbs., No. 1 Standard drop	150.
Lathe, 18x8" Schumacher & Boye, quick change with taper	500.
Lathe, 20x10 Bradford, with chuck	400.
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Miller, No. 2 Fox hand	100.
Miller, No. 0 Cincinnati plain, power feed	250.
Miller, No. 1 Garvin full universal, power feed	600.
Miller, No. 2 Kempsmith plain	650.
Miller, No. 3 Kempsmith plain, with dividing head	550.
Miller, Briggs, G. & E. manufacturing, 16" and 24", each	200.
Miller, No. 3 Becker vertical	325.
Miller, No. 5 Becker vertical, no rotary	500.
Miller, No. 7 Becker, Lincoln type	150.
Miller, No. 21 Garvin power feed, oil pump	150.
Miller, Hendey, Lincoln type	100.
Miller, Ingersoll slab, 42"x36"x9"	1,750.
Oil separator, Curtis 1 bu.	100.
Planer, 24"x24"x8" American, 1 head self contained countershaft	600.
Planer, 24"x24"x8" American, 1 head self contained countershaft	650.
Planer, 24x24x8 Fitchburg, 1 head	400.
Planer, 32x32x8 Pond, 1 head	750.
Saw, 6x6 Peerless h. s., d. c. motor #150.—a. c.	175.
Saw, 9x9 Peerless h. s., d. c. belt drive	250.
Saw, Racine metal band, nearly new	175.
Shaper, 20" Rockford, back geared, crank	550.
Shaper, 21" Milwaukee, back geared, crank	550.
Shaper, 24" Averbeck, balanced ram, vise, countershaft	800.
Shaper, 24" Rockford universal combination	1100.
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Turret lathe, 24 Warner & Swasey, bar and chuck equipment	1,500.
Turret lathe, No. 4 Briggs 1 1/4" friction head, full equipment	250.
Turret lathe, 24" Steinlee, 5/8" hole, slide carriage	700.

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Herman L. Winterer,

943-53 N. Front St., Philadelphia, Pa.

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43"x17' 44" Bement-Miles.
37"x14' Johnson d. b. g., q. c. f., t. a.
32"x12' Pittsburgh, heavy duty, q. c. g.
27"x12' Bullard.
26"x11' Wickes, q. c. g.
23"x10' Niles, q. c. g.
19"x10' Draper, patent head.

18" x 7' Chard, d. b. g., semi q. c. g.
15" x 8' Sidney, q. c., d. b. g., t. a.
14" x 6' Springfield, latest type, tool room type, t. a.
14" x 8' Lodge & Shipley, patent head, taper, pan bed.
14" x 8' Lodge & Shipley, q. c.

TURRET LATHES.

34"x28" Pond, triangle.
3x36" Pratt & Whitney, hollow hex.
19"x7' Fay & Scott, back grd.
No. 224 Garvin Monitor.
14"x 6' Warner & Swasey.

No. 3 Foster sc. machines 1-5/16" wire feed, (2).
14"x9" Cincinnati-Acme, wire feed.
No. 4 B. & S., bar feed, all auto. fds.
No. 2 Smurr & Kamen, wire fd., (5).

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48" Almond, sens. radial, post type.
40" Barnes horizontal radial.
26" Aurora, sliding head.
24" Foote-Burt heavy duty.

20" Excelsior, b. g.
20" Champion, motor driven.
20" Aurora, b. g., p. f.

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No. 5 Cincinnati, table 94"x50 1/2".
No. 5 Becker Brainard, vertical.
No. 3 Brown & Sharpe, plain, cone type.
No. 3 Hendey, q. c. g.

No. 1 Van Norman hand miller.
No. 3 Becker-Brainard, new model, q. c. g., vertical attachment.
No. 3 Becker universal milling machine.

PLANERS AND SHAPERS.

45"x37"x9' Sellers, 2 heads.
48"x48"x12' Gray, 2 heads.
48"x36"x14' Cincinnati, 4 heads.

30"x30"x8' American, 1 head.
15" Lodge & Davis shaper.

BORING MILLS.

Boring mill, car wheel, 60" Newton.
42" Bullard, 2 swivel heads. (2).
Boring mill, No. 1 Sellers hor., 2 1/2" bar.

Boring, drilling and milling machine, 17 1/2" Bement-Miles horis.

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4" & 8" Eaton, Cole & B., pipe.
4" Armstrong, No. 00 pipe machine.

3" Cox, quick opening dies.

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Arbor press, No. 3 Greenerd.
Arbor press, No. 8 Greenerd, 28" bet. columns.
Arbor press, 20 ton Weaver.
Centering mch., 8" Whiton, dbl. sp.
Centering machine, 4" Hendey, motor driven.
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Gear shaper, No. 35 Fellows, straight and helical heads.
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Grinder, No. 8 Diamond, double end, heavy type.
Grinder, disc, No. 17 Bealy.
Grinders, several dbl. end electric.
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Hammer, No. 2 Beaudry-Champion, 50 lb.

Hammers, 60 lb. Bellefonte upright, 2.
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Punch or gate shears, 72" Cleveland multiple, 15" throat.
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Punch presses, all sizes, (55).
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Riveter, air, 6" gap Allen, cap. 1 1/2".
Riveter, air, 6" Allen, cap. 1 1/2".
Saw, No. 7K Atkins Kwick-Kut.
Rolls, 4' drop end corrugated.
Saw, Q. M. & S. No. 4-B universal, 33" blade.
Shear, 8' Ohl, No. 20 ga.
Slotter, 14" Niles.
Slotter, 3 1/2" Rhodes vertical.
Tire press, hyd., 60-ton Defiance.
Tooth rounding machine, S. & S.

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Putnam 14"x6'. Perkins threading 21"x10'.
Greaves-Klusman 18"x8. New Haven 32"x12'.

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42"x36"x22' Whitcomb. 17"x20"x8' Whitcomb.
32"x26"x16' Whitcomb, 2 heads. 30"x30"x8' Powell, 2 heads.
22"x22"x6' Whitcomb.

TURRET LATHES.

3x36" J. & L., chuck equipment, 16" Reed Prentice.
double spindle. 21" Gisholt.
2 1/2 x 26" Greenlee.

MILLERS.

No. 1 Steptoe.

BORING MILLS.

3"x24" Rockford. 24" Reed-Prentice.

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Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

MILLERS.

No. 2B B. & S. univ., single pulley. No. 4 Becker vertical.
No. 2B Kearney & Trecker univ. No. 1-V Brown & Sharpe, power fd.
No. 2 Rockford plain. 30"x9' Beaman & S. vert. and horiz.
No. 2 Brown & Sharpe plain. 30" Bullard vertical turret.
No. 3 Cincinnati plain. 24" Binnie horizontal boring mill.
No. 2 Brown & Sharpe universal. Large variety of smaller millers.

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26"x14' Davis, q. c. g. 14"x8' Bradford q. c., taper.
26"x13' Wickes, semi-quick chg. gr. 16"x 7' Oliver, q. c. g.
20"x10' LeBlond q. c. g., 3 1/2" sp. hole. 16"x 6' Cincinnati, q. c., taper.
18"x10' Davis, q. c. g. 15"x6' Whitcomb-Blaisdell, motor.
19"x8' LeBlond q. c. g., taper. 14"x 6' Hendey, taper attach. (3).
18"x8' Rahn-Larmon, motor drive. 14"x6' Rockford.
18"x8' Greaves-Klusman q. c. g. 14"x6' LeBlond taper, collets.
18"x8' Sidney, quick change gear. 12"x5' Vernon q. c. g.

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24" Aurora sliding head, t. a. 20" Becker, style F.
24" Mechanics, sliding head, g. b. 2-spindle Avey high speed, tapping.
28" Snyder sliding head, g. b. Variety of bench and floor types,
6-spindle Barnes, power feed. Leland-Gifford, Avey, Allen, etc.
4-spindle Avey high speed. drill presses.
2-spindle Cleveland, tapping attach.

SHAPERS

20" Gould & Eberhardt, gr. crank. 14" Steptoe, crank.
20" Queen City, geared crank. 14" Smith & Mills, crank.
20" Cincinnati, geared crank. 14" Hendey, tight and loose pulley.

SCREW MACHINES AND TURRET LATHES.

No. 4 W. & S., b. g., friction head. 24" Jones & Lamson.
No. 2 Warner & Swasey. 24" Pratt & Whitney.
No. 2 W. & S. hollow hex. turret. Large variety Fosters, Acme, V. O.
No. 2, 1, 0 B. & S. formers. No. 53 Nat-Acme, motor att. (5).
No. 2 Brown & Sharpe semi-auto. 4", 3" Cleveland (5).

MISCELLANEOUS.

Bolt cutters, 1/2", 1", 1 1/2", 2" Acme. Keyseaters, Nos. 0 & 2 Becker.
Bolt cutters, 1", 1 1/2" Landis. Keyseaters, Nos. 1 and 2 Davis.
Gas engine, 75 h. p. Foos, direct connected to 100 k. w., 220 v., d. c. generator. Tappers, 1/2", 3/4" Rickert-Schafer.

Large stock of lathes, punch presses, plain and universal grinders, 2 1/2', 4' 5', 8', 10' power squaring shears, tappers, several hundred Warner & Swasey, etc., box, boring tools etc.

USED AND REBUILT MACHINERY

FOR SALE BY

Marr-Galbreath Machinery Co.,

Air compressor, 12 cu. ft. Natl. belt.
 Air compressor, 12"x10", a. c. motor.
 Air comp. 8x6, dble cyl. Gardner.
 Air compressor, 1190 cu. ft., a. c. mtr.
 Arbor presses, Nos. 0, 1, 2 & 3.
 Bender, angles, hand, No. 9 Buffalo.
 Blowers & exh., 6, 8, 9 & 16" opening.
 Bolt cutter, 1 1/2" Morgan, double hd.
 Bolt cutter, 1 1/2" Acme, triple head.
 Boring mill, 42" Bullard, 2-heads.
 Boring mill, 51" Bullard, 2-heads.
 Brake, 8"x12 ga. Power, Chicago.
 Brake, 10"x18 ga. D. & K. hand.
 Burnishing barrel, 24"x16", glass lined.
 Cold saws, Nos. 11 1/2 and 12 Higley.
 Crane, 5-ton P. & H. 44' 6" span, a. c.
 Crane, 10-ton, 40' span, 220 v. d. c.
 Die sinker, Jackson, 48"x13".
 Draw bench, Oliver 6' belted.
 Drill, 18" Detroit High Speed bench.
 Drill, 20" Prentice, plain.
 Drill, 22" Willey, b. g. motor 110 v.
 Drill, 23" Rockford, b. g., p. f.
 Drills, 26" Barnes, b. g., p. f.
 Drill, radial, 30" Taylor & Fenn.
 Drill, 3' Prentice, t. a.
 Drills, sensitive floor, 10", 12", 14".
 Flanging mch. Sievert, 10 ga. hand.
 Floor crane, 4000 lb. cap., (hand).
 Forge, 92-D. Buffalo, 37x33".
 Forging mche., 1 1/2" Acme, steel bed.
 Forging mach., 3" Acme, steel, m. d.
 Forging and rivet header, 1" Ajax.
 Furnaces, oil tempering, 10"x10"x10".
 Gear and pinion cutter, No. 3 Sloan & Chace.
 Grinder, No. 1 Norton universal tool and cutter.
 Grinder, No. 3 Brown & Sharpe univ. cutter & tool.
 Grinder, surface, No. 1W. & M., m. d.
 Grinder, d. e. safety, 16"x3" wheels.
 Grinder, No. 18-D Rowbottom.
 Grinder, No. 60 Heald, 19" arm.
 Hack saw, Atkins, cap. 8"x8".
 Hammer, 40 lb. & 75 lb. Bradley.
 Hammer, 2-B. Nazel, belt and motor.
 Hammer, 2500 lb. Chbg., s. f. st. am.
 Hammers, stm. s. f. 600, 1100, 1500 lbs.
 Hammer, 250 Chbg. board drop.
 Hoists, air, 700, 800 & 1300 lbs.
 Jointer, bench, Oliver, 6" belt.
 Keyway cutter, 24" Morton, cap. 2 1/2".
 Lathes, coil winding, Nos. 3 & 4.
 Lathe, 6"x24" Wade, bench.
 Lathe, 9" Hardinge, turret, bench.
 Lathe, 10"x4" Seneca Falls.
 Lathes, 17"x6" R-L, q. c. g.
 Lathe, 18"x6" Hendey, t. a. tie bar.
 Lathes, 18"x8" R-F., geared head.
 Lathe, 18"x8" Cisco, q. c. g.
 Lathe, 18"x9" Lehman, q. c. g. t. a.
 Lathe, 18"x12" Lodge & Shipley q. c. g., t. a.

58 Water St., Pittsburgh, Pa.

Lathe, 21"x12" LeBlond, g. h., pan.
 Lathe, 20"x10" Schellenbach, g. h. t. a.
 Lathe, 20"x10" Sidney, q. c. g., t. a.
 Lathe, 36"x64" Bridgeford gun boring m. d.
 Lathe, 24"x10" Putnam, taper attach.
 Miller, vert. No. 4-B Becker, for m. d.
 Miller, No. 1 Cincinnati universal.
 Miller 3-H. LeBlond, univ.
 Miller, No. 3-B Milwaukee, s. p. d.
 Miller, pl. No. 2 Cincinnati, cone.
 Miller, No. 0 Kempsmith univ.
 Miller, duplex Knight, table 8 1/2"x32".
 Motor, 1 1/2 & 5 h. p. 1/60/110-220.
 Motor, 3 h. p. 1/60/110-220/1200 rev.
 Motor, 15 h. p. 220 v. d. c. 300/1200 rev.
 Motors, 20 & 50 h. p., 3/60/720/900.
 Paper slitter, 15" Jacques, bench.
 Pipe mche., 4" Oster, a. c. mtr. new.
 Pipe machine, 4" Williams, m. d.
 Planer, 20"x16"x45" New Haven.
 Planer, 22"x22"x5" Cincinnati, 1 hd.
 Planer, 36"x36"x8" L. & D., 2-heads.
 Press, No. 14 Stiles (Bliss) plain.
 Press, 52 Ferracute, punch.
 Press, D. G. 62, Ferracute, s. s.
 Press, No. 39 Bliss horn, table.
 Press, No. 3 Massillon, trimming.
 Presses, No. 87 Niagara, screw.
 Punch, 30" thrt., 1"x1" m. d., s. e.
 Punch, horiz., 1 1/2"x1"; 13" tht, m. d.
 Punch & shear, 36" Cleve. e. f. a. j.
 Punch, coping, steel plate, 13" thrt.
 36" die space, 2 holes 1"x1", m. d.
 Radial drill, 2 1/2" Fosdick, t. a.
 Riveter, Allen jaw, 36" cap. 1 1/2".
 Riveter, 4" Shuster rotary, belt.
 Roll, forging, No. 1 Ajax 24".
 Rolls, bending, 66"x3/16" Bertsch.
 Saw, Burke, 12" blade, capacity.
 Saw table, No. 260 F. & E., (wood).
 Screw machine, 10" Pratt & Whitney plain, wire feed.
 Shaper, 7" Rhodes, vise.
 Shaper, 6" Pratt & Whitney.
 Shaper, 12" Springfield, crank.
 Shaper, 16" Am., b. g. crank.
 Shapers, 16" S. & M. American.
 Shaper, 26" Smith & Mills, b. g., cr.
 Shear, 10-P. Lennox serpentine.
 Shear, alligator, Canton 24", No. 4.
 Shears, foot, 36" and 62"x18 ga.
 Shear, rotary, 12" thrt., cap. 10 ga.
 Shear, rotary bevel, Lennox 4" m. d.
 Shear, rotary bevel, 4", m. d.
 Shear, squaring, 8"x14 ga. power.
 Tapping machine, 5/16" Rickert-S.
 Turbo compres. Spencer 5400 c. f. m.
 Turbo-generator, 500 kw, 3/60/2300.
 Turret lathe, 13" Gisholt, 24" h. s.
 Turret lathe, 2"x24", J. & L., s. p. d.
 Turret lathe, 18" W. & S. friction hd.
 Wheel press, 200-ton Niles hyd., 48".

USED AND REBUILT MACHINERY

FOR SALE BY

Foster Machinery Company, 2613 E. 73rd St., Cleveland, Ohio

SHEARS.

12'x14 ga. Loy & Nawrath.

Canton alligator, cap. 14' sq.

MISCELLANEOUS.

Automatic, No. 24 New Britain.

Drill, 14" Allen, ball bearing.

Band saw, 24" woodworking.

Drill, 4" Mueller radial.

Drill, multiple - spindle Bausch,

Riveter, High Speed 2A.

No. 3 Morse taper.

Upsetter, 34" Acme.

FOR SALE BY

McMullen Machinery Company,

Grand Rapids, Mich.

Automatics, 4" Cleveland, (2).

Baling press, Chicago scrap metal.

Cold Saw, No. 4 Greenfield.

Drill, 20" Wisconsin all geared.

Furnace, No. 200 Stewart, Crucible.

Grinder, No. 6-A Bryant.

Grinder, Wisconsin universal.

Lathe, 24x26 Greenlee flat turret.

Pipe machine, 6" Merrill.

Press, No. 3 Manville d. a.

Shear, 272 Niagara, cap. 14 ga.

Welders, No. 10 Thomson, butt.

FOR SALE BY

McDonald Machinery Co.,

1531-33 N. Broadway, St. Louis, Mo.

Air compressors, Ingersoll-R. 5x7, motor drive, Bury 12x12.

Angle bender, Excelsior belt drive.

Arbor presses, Eames No. 6.

Band saw, Klemm metal cutting.

Boring mills, 7 Bullard 42" low price.

Chain hoists, 1, 1½, 2 and 3-ton.

Demagnetizer, Walker.

Drill, Baush 18-spindle.

Drills, Baker, heavy duty (2).

Drills, Leland G 1-sp. h.s., b.b. floor.

Drills, Kokomo 1-spindle, Sipp 1

and 2 spdl., h. s., b. b.

Drills, 20", 24", 26 & 28" b. g., & tap.

Drill, American 2½" radial.

Grinder, Modern 8"x30".

Grinders, Landis piston. motor

driven, Landis cylinder. 90% new.

Grinder, Heald No. 60 cylinder.

Grinders, modern internal; Blount

30", wet (3), Heald 8", mag. ck.

Grinders, St. Louis No. 9.

Grinder, Reed-Prentice vert. surf.,

2 chucks.

Hack saws, 4x4, 6x6 & 2 Racine Jrs,

Atkins 4x4"; Atkins 8x8 h. s.;

Marvel No. 2; Racine h. s.

Hammer, Bement-Niles 1100 lb. st.

Keyseaters, M. & M. No. 0.

Lathes, Schumacher & Boye, 42"x16"

q. c. g.; Bridgeford 36"x12" q. c. g.;

South Bend 24"x14"; Davis 22"x10";

Whitcomb-Blaisdell 22"x8" q. c. g.

Amer. 20"x9"; Hendey 14"x6" q. c. g.

q. c. g.; Monarch 16"x8"; L. & S.

20"x10"; C. & J. 15"x8" all q. c. g.;

40 other assorted sizes.

Milling machines, Kempsmith No. 2.

Ohio No. 20 plain. American No.

1½ universal, Ohio 34; LeBlond

No. 3-H plain; Brown & S No. 3

pl.; Becker No. 4-B vertical; B. &

S. No. 3 B pl., s. p. d.; Kempsmith

No. 3 universal; No. 1 Kempsmith

plain; Becker No. 2 vertical.

Pipe machine, Curtis 3", motor dr.;

Merrill 4" belt drive, Jarecki 2".

Planers, Gray 28"x28"x6", 1 head;

Cincinnati 36"x36"x18" 2 heads;

Pond, 36"x36"x12" table, 18' bed,

2 heads.

Punches, W. & W. No. 17 punch;

Beloit No. 55 punch & shear.

Punch presses, Swaine Nos. 27, 29,

31; Bliss No. 19 o. b. i., (2) Federal

Nos. 1, 2, 3; McDonald No. 2.

Pyrometer, Thwing elec., with rec.

Rolls, Badger 50" Pyramid power

rolls, 5" dia. ½" cap.

Screw machine, Gridley 1-spdl. 24"

auto.; Cleveland 1½" auto.; Gridley

4-sp. 1½" & Gridley 4-sp. 2½" cap.,

automatic; P. & W. No. 2½ hand;

Foster No. 3 hand; Woods No. 2

tilted turret head; Bardons & O.

No. 7; National-A. No. 52 auto.,

4-sp., m. d. B. & S. No. 00 auto.

Shapers, Cinti. 20", b. g.; Ohio 20";

American 16" b. g.; S. M. 16";

Steptoe 14" Barker 24" b. g. 24"

Queen City 24" b. g.; Barker 18"

b. g.; American 18" back geared;

American 20" b. g. with univ. table;

Rhodes 7"; Niles traveling head.

Shears, 60" thrt. rotary slitting. (2).

Turret lathe, Warner & S. No. 2-A.

Welders, butt, Federal, ½" rds.

USED AND REBUILT MACHINERY

FOR SALE BY

West Penn Machinery Company

1208 House Building,

Pittsburgh, Pa.

Air comp., 10"x10" Laidlaw, 275'.
 Air comp., 8x8' Ing.-Rand. 96 cu. ft.
 Air comp., 6"x6" Gardner duplex.
 Air compressor, Gardner portable, gasoline 47 cu. ft.
 Bolt cutters, 14", 2" 24" 4" Landis.
 Bolt cutters, 14", 2" Landis, dbl. hd.
 Boring mills, vertical, 30" to 16".
 Boring mill, horiz. 4 spdl., Newton.
 Brake, 6"x10 ga. Dreis & Krump.
 Brake, 8"x16 ga. Robinson.
 Brake, press type, 8"x10 ga.
 Brake, 10' 6" Ohl, 10 ga., press type.
 Bulldozer, No. 4 Williams & White.
 Bulldozer, No. 25 W. & W.
 Drills, 14" to 38".
 Drill, 2-sp. b. b. Elmore, 3", sens.
 Drill, No. 2 Colburn.
 Drill, mult., No. 5 Fox, 10-spindles.
 Drill, radial, 6' Prentice, s. p. d.
 Flanger, McCabe, 4" capacity.
 Gear cutters, spur and bevel.
 Gear hobber, 26" Gould & E.
 Gear planer, 94" Gleason, bevel.
 Grinder, dbl., 14"x14", 230 v., 3-60.
 Grinder, 12"x36" Norton, b. d.
 Grinder, No. 4 Besly, disc.
 Grinder, disc, No. 52 Besly.
 Grinder, planer type, 51" Springfield.
 Grinder, No. 22 Heald surf., 12" chk.
 Grinder, No. 16 Blanchard.
 Grinder, tool & cut., No. 2 Walker.
 Hammer, 75 lb. Bradley upr. helve.
 Hammer, 80-lb. Bradley, cush. helve.
 Hammer, 100 lb. Bradley, upright.
 Hammer, 150-lb. Dupont, upright.
 Hammer, No. 2-B Nazel.
 Hammer, No. 5-N Nazel, m. d.
 Hammers, steam 600 lb. to 3000 lb.
 Hammer, 1000-lb. Chambersburg.
 Hammer, 2500-lb. Bement, sgl. fr.
 Keyseater, No. 2 Mitts & Merrill.
 Lathes, 12" to 60".
 Lathe, 18"x8' Rockford.
 Lathe, 19"x12' Sidney, q. c. g.
 Lathe, 24"x10' Pittsburgh.
 Lathe, turret, 34" Acme grd. head.
 Lathe, turret, 26" Libby.
 Lathes, turret, No. 4 W. & S.
 Miller, plain, No. 2-B Brown & S.
 Miller, No. 25 Becker, plain.
 Miller, slab, 24"x20"x14' Ingersoll.
 Miller, univ. No. 2 Hendey, s. p. d.
 Miller, univ. No. 3 Brown & S.
 Miller, univ. No. 3 LeBlond.
 Miller, vert. No. 5-C Becker, s. p. d.
 Pipe machine, 2" Williams, b. d.
 Pipe machines, 2" to 12".
 Planer, 48"x42"x12' Cincinnati, 2hds.
 Planer, 96"x72"x42' N.-B.-P. m. d.

Planer, o. s., 42"x42"x12' D. & H.
 Planer, rotary, 48" Newton.
 Press, hyd., 50-ton Lourie.
 Press, hyd., 60-ton Watson-Stillman.
 Press, geared, No. 34 Toledo.
 Press, No. 375 Bliss, s. s., 6" stroke.
 Press, No. 2 Bliss, portable.
 Press, No. 58 Bliss, s. s.
 Press, No. 739 Bliss, s. s.
 Press, No. 745 Bliss, s. s.
 Press, No. 594 Toledo.
 Press, toggle, No. 165 Toledo.
 Press, wheel, 150-ton Caldwell.
 Punch, hor., Cleveland, 1" thru 1".
 Punch No. 2 L. & A. 12" thr. arch jaw
 Punch & s. L. & A. 30" thr. 14" thru 1".
 Punch, No. 14 W. & W., d. e. 14"-1".
 Riveter, Hanna, 18" thrt., 15" gap.
 Riveter, stake, No. 6 Whiting, 48" thrt.
 Rolling mill, 18" Standard.
 Rolls, 14"x20" Ajax.
 Rolls, angle bending, 2"x14" Bertsch.
 Rolls, bending, 42"x12 ga. Bertsch.
 Rolls, bending, 10"x8" Cleveland.
 Rolls, straight ng, 26"x16 ga., 17 r.
 Saw, cold, 24" Hunter high speed.
 Saw, cut-off, Yates double end, new.
 Saw, hack, No. 7 Atkins 8"x8".
 Saw, hack, 13"x16" Peerless, gap.
 Sanderling, 11' tractor type.
 Shapers, 18" P. & J. universal, b. d.
 Shaper, 16" Smith & Mills, b. d.
 Shaper, 24" Stockbridge, b. d.
 Shear, angle, L. & A., 6"x6"x4"
 Shear, alligator, Badger, 1" square.
 Shear, alligator, Garrison, 14" sq.
 Shear, alligator, No. 5 Canton, 3" sq.
 Shear, alligator, Mesta, 5"x5".
 Shear, bevel, Lennox 1".
 Shear, guil. No. 0 H. & J., 14" round.
 Shear, plate, 10"x14" Bertsch, 15" thrt.
 Shear, plate 10"x14" Morgan, 24" gap.
 Shear, plate, No. 7 H. & J. 144"x14".
 Shear, plate, No. 6 H. & J. 112"x14".
 Shear, rotary, No. 3 Quickwork 1".
 Shear, rotary, No. 6 Quickwork 1".
 Shear, squa. 12"x14 ga. Peerless.
 Shear, sq., 10"x3/16" W. & R., m. d.
 Shear, sq. 8"x18 ga. Bertsch, foot p.
 Shear, sq. 72"x14 ga. Bertsch, b. d.
 Shear, squar. 42"x3/16" Canton, b. d.
 Straightener, bar, No. 4-D K. & R.
 Straightener, beam, No. 4 H. & J.
 Swaging machine, 1" Langelier.
 Testing machine, 100,000 lbs.
 Welder, Gibb spot, 3", 32" thrt.
 Upsetters, 14" to 5".
 Upsetter, 14" Acme.
 Upsetter, 4" Acme, steel frame.

USED AND REBUILT MACHINERY

FOR SALE BY

Carlson Machinery Co., Inc.,

Davenport, Iowa

Boring mill, No. 2 Rockford horiz.
Boring mill, No. 3-A Universal hor.
Centering machine, 4" Pratt & W.
Drill, 1" Sipp h.s.b.b., 8" overhang.
Grinder, 10x20 Landis universal.
Hobber, 24" Schuchardt & Schutte.
Lathe, 7"x30" Dalton bench.

Lathe, 13"x5" Sheppard.
Miller, No. 3 Ohio plain.
Turret lathe, No. 4 W. & S. pl.
Turret lathe, No. 6 Warner & S.,
power feed to carriage and turret.
Turret lathe, No. 3 Foster.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road,

N. S. Pittsburgh, Pa.

Automatic, 2" Cleveland model A,
single spindle.
Automatic, 3/4" Cleveland model A,
single spindle.
Automatic, 1/2" Gridley model G, m. d.
Automatic, 3/4" cone, m. d., latest type.
Automatics, Nos. 52, 53 & 55 Acme.
Bolt cutter, 1" Acme, class "A," 2-sp.
Bolt cutter, 1/2" Geometric, m. d.
Bolt cutter, 1 1/2" Acme, double head.
Bolt cutter, 2 1/2" Acme, single head.
Boring mill, D. & H., 3 1/2" bar.
Boring mill, Niles horiz., 4 1/2" bar.
Boring mill, 42" Bullard, 2 heads.
Boring mills, 51" Bullard, 2 hds (2).
Boring mill, 7-10" Betts, 2 heads.
Brake, 8" D. & K., 14 gauge.
Buffers, 10 h. p., 220-3-60-3600.
Bulldozer, No. 4 Williams & White.
Broach, No. 3 LaPointe.
Centering mche., Cadillac dbl. end.
Cutting-off machine, 6" Hurlburt-R.
Drill, 35" Weigel, sliding head.
Drill, 34" Barnes, sliding head, t. a.
Drill, 3-spindle Taylor & Fenn, p. f.
Drill, 4-spindle Prentice sensitive.
Drill, P. & W. multiple, 12-1" spdl.
Drill, D-2 Colburn heavy duty, (2).
Drill, No. 25 Foote-Burt hvy. duty.
Drill, No. 25-36 Foote-B. hvy. duty.
Gear cutter, No. 1 Bilton.
Gear cutter, 40"x9" G. & E., s. p. d.
Gear cutter, No. 13 Brown & Sharpe.
Grinder, 5 h. p. U. S., 220-3-60.
Grinder, Oliver drill, 1/2" cap., m. d.
Grinder, No. 60 Heald, serial 2230.
Grinder, No. 11 B. & S. plain.
Grinder, 12"x24" Modern plain.
Grinder, No. 1 Norton univ. cutter.
Grinder, No. 16 Besly, double disc.
Grinder, No. 120 Gardner dbl. spdl.
Grinder, No. 5 Springfield planer
type.
Hammer, No. 1AA HighSpeed, m. d.
Hammer, 300 lb. Bradley upright.
Keyseater, No. 2 Baker, cap. 2".
Keyseater, 48" Morton, cap. 2 1/2".
Lathes No. 3 Hardinge Precision (3.)
Lathe, 12"x16" Davis tool rm., q. c. g.

Lathe, 14"-28" Fay & Scott gap.
Lathe, 16"x8" American, late type.
Lathe, 18"x10" W.-B., g. h., s. p. d.
Lathe, 20"x12" Greaves-K., q. c. g.
Lathe, 24"x12" Schumacher-B. q. c. g.
Lathe, 24"x14" Greaves-K., q. c. g.
Lathe, 27"x18" Reed, bargain.
Lathe, 30"x12" Boye & Enmes, q. c. g.
Lathe, 18" Libby turret, s. p. d.
Lathe, 21" Gisholt turret, (2).
Miller, No. 1 Knight, 6"x18".
Miller, No. 13 Garvin plain.
Miller, No. 24 LeBlond univ. h. d.
Miller, No. 2 Cincinnati plain.
Miller, No. 3 Cincinnati plain, m. d.
Miller, No. 4 Hendey plain, s. p. d.
Miller, No. 5C Becker vertical.
Pipe mche., Jarecki 1 1/2" to 6", m. d.
Pipe mche., E. C. & B., 2 1/2" to 8".
Pipe machine, Merrill, 2 1/2" to 12".
Press, No. 87 Niagara screw.
Press, No. 3 Adriance o. b. i., 3 1/2" str.
Press, No. 3 Standard, o. b. i.
Press, No. 5 Toledo o. b. i., flywheel.
Press, No. 202-B Toledo dbl. crank.
Press, Ferracute DD2, o. b. i., cam.
Press, No. 54 Toledo trimming, m. d.
Planer, 24"x24"x8" Powell, 1 head.
Planer, 30"x30"x8" Powell, 1 head.
Planer, 33"x33"x12" Cincinnati, 2 hds.
Planer, 48"x38"x12" Gray, 3 heads.
Planer, 48"x48"x14" Betts, 3 heads.
Planer, 96"x72"x42" N. B. P., m. d.
Punch, Wickes, 48" thrt., cap. 1 1/2"x1".
Radial drill, 4" Mueller plain, (2).
Radial drill, 4" Dreses, g. b., s. p. d.
Radial drill, 6" Reed-Prentice, m. d.
Saw, 14" American metal swing, m. d.
Saw, No. 3 Ryerson friction, m. d.
Screw mche., No. 4 W. & S., b. g. f. h.
Seamers, Bliss, Leffler & Max Ams.
Separator, Dings magnetic, b. d.
Shaper, 14" Ohio single gear crank.
Shaper, 14" Steptoe single gear crk.
Shaper, 26" Averbek, g. b., s. p. d.
Shaper, 24" Averbek, g. b., s. p. d.
Shaper, 30" Morton draw cut.
Tapper, 1/2" Webster & Perks, 1-spdl.

Our warehouse is full of bargains. What have you for sale?

USED AND REBUILT MACHINERY

FOR SALE BY

Arthur C. Badger Metal Products Co.

962 Park Square Bldg.

Boston, Mass.

MIXING KETTLE

One steel mixing kettle, 36" diameter by 36" deep, single stirrer.

OVEN FURNACE

One Stewart oven furnace, 48" wide, 36" high, 54" deep, 6" opening with cover in door, heated by gas. In good condition, practically unused.

FOR SALE BY

Lee Machinery Company, Inc.

6318 E. Jefferson Ave.,

Detroit, Michigan

Centering machine, Whiton.

Grinder, 12" Heald rotary surface.

Lathe, 18"x8" Whitcomb-Blaisdell, with chuck.

Lathe, 16"x6" Lodge & Shipley, quick change.

Tumbling barrel, 24"x36".

We are now carrying the Loshbough-Jordan line of punch presses in stock.

We can make immediate delivery on all sizes South Bend Lathes from 9" to 21".

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St.,

St. Louis, Mo.

HAMMERS.

No. 5-B 500-lb. Nazel motor-driven.

60 lb. Bradley helve.

2000 lb. Niles steam.

LATHES.

60"x12" New Haven turning lathe.

18"x 6" LeBlond, q. c. g.

26"x12" Fifield, heavy pattern.

15"x10" Cisco, q. c. g.

24"x10" LeBlond, p. c. g.

14"x 6" Flather, q. c. g.

20"x16" Monarch gap lathe.

PLANERS AND SHAPERS.

24"x24"x 6" Powell.

48"x48"x16" Pond, box table, arranged motor drive.

36"x36"x18" Hamilton, motor drive.

20" Smith & Mills, shaper, b. g.

42"x42"x12" Powell, 3 heads.

24" Gould & Eberhardt shaper, b. g.

36"x36"x12" Cleveland openside.

20" Steptoe shaper

20" Whipp shaper.

MILLERS.

Hendey, Lincoln type.

No. 14 Brown & Sharpe plain.

No. 7 Becker, Lincoln type.

No. 14 Rockford plain.

DRILLING MACHINES.

3' Drees radial.

22" W. F. & John Barnes.

32" Mechanics drill.

20" Champion.

GRINDERS.

14"x36" Landis universal.

No. 50 Gardner disc, 30" capacity.

8" Heald rotary, magnetic chuck.

No. 6 Besly double disc.

BORING MILLS.

No. 1 P. & H. horizontal drill.

51" Baush, 2 heads, heavy.

42" Niles, 2 heads.

SCREW AND TURRET MACHINES.

3"x24" J. & L., geared head.

3"x36" J. & L., geared head.

No. 6 Warner & Swasey cone head.

2" Warner & Swasey hollow hex.

TRAVELING CRANES.

15 Hand, cranes 14' to 42' span.

3 yard jib cranes with guy ropes.

MISCELLANEOUS.

Bulldozer No. 3.

Rotary planer, 48".

Forging mch., 24" Acme, steel bed.

Sand slinger, Beardsley & Piper,

Furnaces, cyanide hardening.

No. 18, type P.

Presses, Lourie hydraulic, 20 & 30 ton

Shear, Lennox, rotary bevel.

Punch, horizontal, 1" in 1".

Slotter, 13" Niles.

Punch & shear, Cleveland 42" throat.

Swager, No. 1 Dayton.

USED AND REBUILT MACHINERY

FOR SALE BY

Bennett Machinery Co.,

30 Church St., New York City

Boring mill, 51" Bridgeport, 2 hds.
Boring mill, 42" Bullard, 2 hds.
Boring mche., 28" Fitch, knee type
Drill, mult. 6-sp. Baush, in circle.
Drill, 25" Snyder tap., motor drive.
Drill, 20" Hoefler.
Gear cutter, 48" B. & S. No. 5 spur.
Grinder, 14" x 36" P. & W. vert. surf.
Hack saw, 48" Goodell & Pratt.
Lathe, 45" x 34" N. B. P., geared hd.
Lathe, 26" x 12" McCabe, dbl. sp.
Lathe, 28" x 12" Boye & E., q. c., taper.
Lathe, 24" x 33" x 14" Pond, belt.
Lathe, 24" x 24" Schumacher-B., cone.
Lathe, 21" x 10" Sidney, new.
Lathe, 19" x 8" LeBlond, q. c. g., taper.
Lathe, 18" x 8" Whitcomb-B., q. c. g.
Lathe, 20" x 44" x 12" Putnam gap.
Miller, No. 3 Kemp Smith plain.

Motor, 20 h. p. variable speed, d. c.
Pipe machine, 8" E. C. & B., belt.
Pipe machine, 8" Jarecki, motor.
Pipe mch., 8" Saunders, belt dr.
Pipe machine, 6" Saunders 24-6".
Pipe machine, 6" Oster belt.
Pipe machine, 4" E. C. & B., belt.
Pipe mche., 4" Curtis & Curtis, mtr.
Pipe machine, 3" Jarecki No. 7B.
Planer, 30" x 30" x 10" Cincinnati, 2 hds.
Punch, 24" L. & A. No. 4 s. e.
Punch, shear, angle cutter, etc.,
No. 27-U 30" Buffalo; No. 24-U
20" Buffalo combination.
Saw, cold 22" blade Gleim, 6" cap.
Shaper, 24" Hollingsworth cone.
Shaper, 21" American, belt drive.
Shaper, 20" Gould & Eberhardt \$375.
Shaper, 16" Stockbridge, belt.

FOR SALE BY

Randle Machinery Co.,

1733 Powers St., Cincinnati, Ohio

Bending rolls, 7" x 14" H. & J.
Bending rolls, 8" x 5/16" Bertsch, m. d.
Bending rolls, No. 9 Bertsch 10" x 14",
motor drive.
Bending rolls, No. 8 H. & J., 30".
Bending rolls, 12" x 14" Fisher.
Bolt cutter, 14" - 2" Acme & Landis.
Bolt cutter, 2" Landis nipple.
Bolt cutter, 4" Acme.
Boring mill, 36" 42" Bullard.
Boring mill, 51" Niles.
Boring mill, 60" Bullard.
Boring mill, 72" Niles-Bement-P.
Boring mill, 84" Niles.
Boring mill, 96" Bickford.
Brake, 4" x 10 ga. Robinson foot pwr.
Brake, 8" x 14 ga. Pexto hand power.
Brake, 8" x 10 ga. Robinson, m. d.
Gear cutter, 18" S. & S.
Gear cutter, 14" G. & E.
Gear cutter, 30" Whiton.
Grinder, No. 2 Diamond face.
Grinder, 10" x 30 Queen City plain.
Grinder, 30" Baldwin knife.
Grinder, No. 41 Besly, m. d.
Grinder, No. 8 Badger, m. d.
Hack saw, 6x6, Racine or Peerless.
Hack saw, 8x8 Atkins.
Keyseater, Nos. 1 and 3 1/2 Baker.
Keyseater, No. 6 M. & M.
Keyseater, Nos. 1 and 2 Davis.
Lathe, 14" x 6" Sidney, l. c.
Lathe, 16x8 American q. c.
Lathe, 18" x 8" B. & E., q. c.
Lathe, 18" x 8" Cincinnati q. c.
Lathe, 21" x 10" LeBlond, q. c.
Lathe, 23" x 14" LeBlond, q. c.
Lathe, 24" x 14" American, l. c.

Lathe, 24" x 26" American, g. h.
Lathe, 42" x 24" Bradford.
Lathe, 24" x 22" L. & S., g. h.
Lathe, 36" x 14" L. & S., m. d.
Lathe, 32" x 20" Wickes semi-q. c.
Miller, 12" Cincinnati mfg. type.
Miller, No. 1B B. & S. plain.
Miller, No. 2 LeBlond, B. & S. pl.
Miller, No. 3 LeBlond plain.
Miller, No. 2 B. & S. univ.
Miller, No. 28 Oesterlein plain.
Planer, 32x32x6" Gray, 1 head.
Planer, 32x32x16 Gray 2 heads.
Planer, 48x48x14" Gray, 4 heads.
Planer, 72x60x16" D. & H., 3 heads.
Planer, 80x80x16 W. & W., 2 heads.
Radial drill, 2 1/2" Hilbert g. b.
Radial drill, 3" American g. b.
Radial drill, 3" Morris, g. b.
Radial drill, 3 1/2" Mueller, g. b.
Radial drill 4" Bickford, g. b.
Shaper, 14", 18" and 20" Steptoe.
Shaper, 20" Queen City, b. g.
Shaper, new 16" Queen City.
Shaper, 24" Cincinnati, b. g.
Shaper, 28" Queen City, b. g.
Shaper, 32" Cincinnati, b. g.
Shear, No. 51 Beloit combination.
Shear, 86" x 10 ga. Streine.
Shear, 8" x 16 ga. Bertsch.
Shear, 8" x 14 ga. Bertsch.
Shear, 8" x 12 ga. Excelsior.
Shear, 12" x 18 ga. Streine.
Sprue cutter, Obermeyer.
Press, No. 21 Bliss.
Press, No. 15 Toledo.
Wheel press, 100, 150, 200 & 300 tons.

Also many other tools. Send us your inquiries.

USED AND REBUILT MACHINERY

FOR SALE BY

Mid-West Machine Tool & Supply Co.,

Davenport, Iowa

Automatics, full, No. 00 Brown & S.
Grinders, No. 10 Brown & Sharpe.
Grinder, 10"x52" Landis, s. p. d.
Grinders, surface, No. 22, Heald.
Hobber, Nos. 3, 12-B & C.

Miller, No. 13-B B. & S., production.
Miller, No. 3 Cincinnati plain.
Radial, 4' American sensitive.
Radial, 3' Morse.
Turret formers, Nos. 0 & 2 B. & S.

Partial list; send us your inquiries.

FOR SALE BY

Rosenfeld Machinery Co., - 942-944 W. Lake St., Chicago, Ill.

Broaching machine, No. 2 LaPointe (New London), with broaches.
Grinder, No. 10 Besly disc.
Milling machine, No. 2 Cincinnati universal, complete.
Milling machine, 1B Milwaukee, single pulley drive with vise.
Miller, Becker vertical, Model CS, rotary table.
Motors, $\frac{1}{2}$ h. p. to 100 h. p., a. c. and d. c.
Punch press, 1-4P style, solid back.
Vises, 100 new Rock Island, all sizes.

FOR SALE BY

Davis Machinery Exchange, 1-3-5 So. St. Clair St., Toledo, Ohio

Air compressor No. 12 Ingersoll-R.
Air compressor, 8x8 Union.
Band saw, 10" Napier metal cutting.
Band saw, 9" H. & R. metal cutting.
Bolt threader, 1 $\frac{1}{2}$ " Landis, sq. head.
Bolt threaders, 1 $\frac{1}{2}$ " and 2" National.
Brake, 36" Geo. A. Ohl hand power, geared, $\frac{3}{16}$ " capacity.
Centering mch., Whiton, dbl. end.
Chucking machine., No. 33 New Britain automatic.
Drill, Leland-Gifford high speed, motor drive.
Drill 24" Superior, sl. hd., b. g., p. f.
Drill, 20" Barnes camel back, single spindle, all geared.
Drill, 6-sp. Nat. Acme horizontal.
Drill, 6-spindle Foote-Burtsensitive.
Drill press, 24" Fosdick-Holloway radial, tapping attachment.
Engine lathe, 18"x8" Oliver, q. c. g., chuck.
Engine lathe, Lehmann, q. c. g., chk.
Grinder, No. 260 Heald 16" rotary surface.
Grinder, No. 1 Greenfield plain.
Grinder, No. 19-53" Besly vert. disc.
Grinder, 8"x18" Ott.
Grinder, No. 60 Heald cylinder.
Grinder, No. 1 Fraser cylindrical.
Hack saw, 6"x6" Marvel power.
Hammer, No. 14-B High Speed riveting, m. d.
Keyseater, No. 0 Mitts & Merrill.
Keyseater, No. 2 Davis.
Lathe, 14"x6" Monarch, q. c. g., ck.
Lathe, 14"x6" American, q. c. g., chuck.
Lathe, 14"x6" Walcott, q. c. g., chuck.
Mill, No. 3 Kemp Smith plain.

Mill, No. 3-B B. & S. plain, s. p. d.
Mill, No. 2 Cincinnati plain, c. p.
Mill, No. 2 Cincinnati Hi Power plain, s. p. d.
Mill, A. B. Becker vertical, s. p. d.
Mill, No. 5 Becker vertical.
Mill, No. 20 Garvin vertical.
Miller, Fox hand.
Miller, No. 6 Whitney hand.
Milling & drill, mch., No. 14 Knight.
Press, arbor, No. 28 Atlas.
Press, arbor, No. 3 Greenerd.
Press, No. 2 Consolidated o. b. i., flywheel.
Press, No. 3 Consolidated o. b. i., flywheel.
Press, No. 3 Toledo o. b. i., flywheel.
Saw table, No. 3 Crescent, tilting table, revolving arbor.
Screw machine, 1 $\frac{1}{2}$ "-1 $\frac{1}{2}$ " Cleveland automatic, model A.
Shaper, 20" Mattison crank, b. g.
Shaper, 24" Rockford crank, b. g.
Shaper, 26" Smith & Mill crank, b. g.
Shaper, 28" Ohio crank, b. g.
Shear, Lloyd Booth geared alligator, 12" blade.
Shears, Quickwork rotary.
Slitter, gang, No. 513 Toledo, 36"x18 gauge.
Tapper, No. 1 Garvin vertical.
Tumbling barrel, 28"x72" W. S. Sly horizontal.
Turret lathe, No. 1 Foster, wire fd.
Turret lathe, No. 7 Foster, power feed to turret and cross slide.
Welder, Taylor spot, 50 k. w., 60 cy., 440 v.

USED AND REBUILT MACHINERY

FOR SALE BY

Unlted Mchry. & Supply Co.,

Forging machine, 14" Ajax.
Grinder, Ott cylinder, 8" swing.
Hammer, Nazel air forging, belt dr.
Hammer, 800 lb. B. & S. board drop.
Nut machine, 14" Ajax, No. 1363.
Press, S. & P. dbl. acting, drawing.

1241 Walton St., St. Louis, Mo.

Shear, alligator scrap, No. 2 Doelger & Kirsten.
Shear, rotary disc, 3" capacity.
Straightener, bar, 3" wide capacity.
Tumbler barrel, No. 20 Baird incl.

FOR SALE BY

J. Bleser Mfg. Co.,

16th & Madison Sts., Springfield, Illinois

Grinders, Landis Nos. 14 & 2 univ.
Lathe, Lodge & S. 36"x18", q. c.
Lathe, Prentiss 25"x16", s. c. g.
Lathe, Greaves-K., 16"x8", q. c. g.
Pipe machines, 2", 4", 6", & 8".

Miller, Transit heavy duty.
Millers, No. 3 Burke, Rockford.
Punch press, No. 3-A Walsh arch.
Screw machine, No. 4 Warner & S.
Shapers, Smith & Mills, 16", 12".

FOR SALE BY

The Reeve-Fritts Co., 558-560 W. Washington Blvd., Chicago, Ill.

Boring mill, 24" Lucas horizontal.
Die filer, No. 3 Barry.
Drill, 4" Ryerson radial.
Drill, 14" Leland h. s., b. b.
Drill, 16" Sipp h. s., b. b.
Drill, 20" Washburn h. s., b. b.
Drill, 20" Barnes, all grd.
Drill, 5-spindle Fox, 4" cap.
Drill, 6-spindle Barr, 4" cap.
Gear cutter, No. 98 G. & E. spur & b.
Grinder, Heco surface, 16"x24" table.
Lathe, 9x20 Porter-Cable prod.
Lathe, 10"x5" P. & W., tool makers.

Lathe, 16"x8" Flather, q. c. g.
Lathe, 20"x8" Bradford.
Lathe, 24"x12" Peerless, c. r.
Miller, No. 2 Rockford, plain.
Miller, No. 2 Ford-Smith universal.
Miller, No. 60 B. & S., hand.
Planer, 24"x24"x6" Rockford.
Press, No. 3-P Am. Can solid bk.
Press, No. 1 Massillon tim.
Press, No. 0 LaSalle bench.
Shaper, 7" Rhodes crank.
Shop saw, 6x6 Peerless h. s.

FOR SALE BY

The O'Brien Machinery Co.,

113 N. Third St., Philadelphia, Pa.

Boring mill, No. 14 Beaman Smith horizontal, floor type, 34" bar.
Bolt cutter, 24" Acme belt, lots of dies.
Drill, 32" Aurora, motor driven.
Gear cutter 30" Whiton, belt.
Grinder, 12"x36" Cincinnati univ.
Grinder, 14"x96" Norton plain, belt.
Grinder, No. 2 Norton universal.
Hammer, 2000 lbs. Chambersburg, double frame, steam forging.
Hammer, 1100 lb. N. B. P., sgl. fr.
Hammer, 600 lb. Bement sgl. frame.
Hammer, 100 lb. Beaudry belt.
Lathe, 30"x30" Harrington.
Lathe, 25"x26" L. & S., b. d., q. c. g.
Lathe, 26"x30" Pond, with motor.
Miller, Newton duplex, planer type, table 21"x12".
Miller, No. 4 LeBlond h. d., plain.
Milling mche., No. 3 Garvin duplex.
Pipe machine, 2" Landis, belt.
Pipe machines, Oster portable, gas drive, all sizes.

Pipe machines, 2", 4", 6", 8" & 12"
Oster, Cox, Williams, Eaton-Cole & Burnham and Jarecki makes, belt or motor driven, comp. stock.
Planer, 36"x36"x24", Bement, 4 hds.
Planer, 36"x36"x12" Cincinnati, 2 hds.
Planer, 54"x54"x30" Sellers, 4 heads.
Press, No. 735 Blisstrimming press.
Press, No. 37 Niagara, 1100 lb. fly-wheel, solid back.
Press, hydraulic wheel, 100 ton, 33" between bars.
Punch, Cady quick acting, cap. 4"x4".
Punch, No. 2 Hilles & Jones, 20" thrft., motor driven, cap. 1" in 1".
Rolls, 6" Beloit, 4" cap., belt.
Rolls, 14" bending, belt, drop end, rolls 94" and 84".
Saw, 16" Higeley cold, cap. 4".
Saw, 30" Espen-Lucas, cap. 8".
Shaper, 18" Cincinnati, one traveling head, 2 tables.
Shapers, 20" Stockbridge, with speed box, (2).

USED AND REBUILT MACHINERY

FOR SALE BY

J. L. Lucas & Son, Inc., - - - **3 Fox St., Bridgeport, Conn.**

TOTE BOXES

1,000 brand new nesting type tote Boxes, 20x12x6 $\frac{1}{2}$, 16 gauge steel with lapped corners and draghole handles, at \$1.00 each.

FOR SALE BY

Taylor Mfg. Co., Inc., - - - **35 Albany St., Cambridge, Mass.**

Automatics, Cleveland 1 $\frac{1}{4}$ " 3 hole turret, (2) each	\$100.
Automatic, Cleveland, 3", 6 hole turret	100.
Grinder, 6x18 Landis No. 11466	400.
Grinder, 6x32 Norton	350.
Grinder, No. 60 Heald cylinder	250.
Grinder, No. 75 Heald	100.
Grinder, small tool	45.
Saw, 11", table 27 $\frac{1}{2}$ x33", countershaft built-in, tight and loose pulleys, dust guard, mitre cutting attachment	60.

FOR SALE BY

Norton-Broadway Mchy. Co., Sixth & Baymiller Sts., Cincinnati, O.

LATHES.

16"x10' Cisco, q. c.	24"x10' Walcott, q. c.
20"x10' Hendey, q. c.	38"x20' Bradford.
21"x10' LeBlond, q. c.	42"x24' Bradford.
32"x16' Wickes.	24"x28" McCabe, 2 spindle.

GRINDERS.

18"x96" Norton cylindrical.	No. 60 Heald.
10"x72" Brown & S. cylindrical.	Bath & Walker surface.
No. 11 Brown & Sharpe cylindrical.	No. 4 & No. 120 Gardner grinders.
No. 14 Pratt & W. vertical.	6"x20" Webster & Perks.

MILLING MACHINES.

No. 3 LeBlond plain.	No. 4 Brown & Sharpe universal.
No. 3H LeBlond heavy.	No. 4 Cincinnati universal.
No. 2B Brown & Sharpe heavy.	No. 4B Brown & Sharpe heavy.
No. 4 Becker plain.	No. 13 Brown & Sharpe.

PRESSES.

No. 3 Toledo inclinable.	No. 723 Toledo inclinable.
No. 4 Toledo inclinable.	No. 1 Long & Allstatter punch and shear.
No. 19-C Bliss inclinable.	No. 3 Hilles & Jones double end.
No. 183 Stiles Parker.	

BORING MILLS.

34" Bullard, one turret head.	42" Gisholt, 2 heads.
36" Niles, 2 heads.	80" Niles, 2 heads.
42" Bullard, 2 heads.	6" Gray horizontal.

PLANERS.

24"x 8' Pond, 2 heads.	36"x10' Fitchburg, 2 heads.
24"x 8' Gray, 2 heads.	Whitcomb crank planer.
30"x 8' Gray, 2 heads.	48"x16' Cincinnati, 4 heads.
48"x16' Detrick & Harvey, open side	24"x 5' Gray, one head.

SHAPERS.

16" Steptoe, crank.	20" Smith & Mills, single pulley.
16" Stockbridge, crank.	24" Queen City, single pulley.
20" Ohio crank.	20" and 24" Hendey.

MISCELLANEOUS.

Drill, Henry & Wright, 5-spd.,	Gear cutter, No. 3-26" B. & S.
Drill, Kokomo 4-spd. high speed	Gear cutter, No. 5-48" B. & S.
Drill, 3' Morris radial, single pul.	Gear hobber, 12" G. & E.
Drill, 34' Carlton, single pulley.	Press, 400 ton Caldwell.
Drill, 34' Mueller, single pulley.	Press, 150 ton Firestone.

300 other good machines in stock.

USED AND REBUILT MACHINERY

FOR SALE BY

Tranter Manufacturing Co., - 105 Water St., Pittsburgh, Pa.
 Drill, portable electric $\frac{3}{4}$ ", 220 v., 3 ph., 60 cy., bargain \$52.50.
 Forge and anvil, Champion No. 31.
 Grinder, 8" U. S. electric bench, 110 v., new, 20% off list.
 Grinder, Mummert Dixon, oilstone and c. s. very good condition.
 Grinder and twist drill attach., Wilmarth & Morman, J. B.

FOR SALE BY

<p>Brown Machinery Co., - Blowers, Nos. 3, 7 and 9 Sturtevant Buffer, Hisey 3 hp., 3-ph., 220 v. Drills, 21" C-O and Champion; 22" Barnes; 24" Cincinnati; 26" Aurora; 32" Rockford. Drills, radial, 24" No. 101 C-O; 34" Gear hobber, G. & E. No. 1716. Grinders, emery, St. Louis & W.; large stock new at 50% disc. Grinders, disc, No. 6 Besly and 14 Gardner; No. 202 Badger. Grinders, drill, W. & M.; American. Grinder edge, 24" Safety E. W. Co. Grinders, plain, 10x36" Norton; 6x36" B. & S.; 12x36" Modern. Grinders, universal, Nos. 3 Ohio and 12 B. & S. Hammer, helve, 40 lb. Bradley. Lathes, turret, 16" Gisholt, Omar, Foster, J. & L. Lathes, No. 5A Potter & Johnston.</p>	<p>2323 N. 9th St., St. Louis, Mo. Lathes, 14" C-J; 16" Monarch; 18" Monarch; Lodge & Shipley; Fay & Scott; 20" L. & S.; 26" Whit- comb-B.; 36" American. Millers, No. 4 Hendey; No. 40 LeBlond; No. 1 Kemp Smith. Pipe machine, No. 2 B. & K. Planer, 42"x36"x10' Pond. Presses, arbor, No. 15 Greenerd. Presses, L. & J. o. b. i., No. 6 Niagara, geared; No. 35 Swaine. Presses, hydraulic, 36x72" Elmes. Profilers, Putnam; Reed-Prentice. Punch and shears, No. 6 L. & A. 12" thru.; No. 17 W.-W. Riveter, $\frac{3}{4}$" Adt. Shaper, 14" Barker. Shears, rotary splitting, No. 134 Marshalltown 4' thru.; $\frac{3}{4}$" cap.; No. 13 Pettingell. Welders, spot, Agnew $\frac{3}{4}$" capacity; Federal $\frac{3}{4}$" capacity.</p>
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And many others. Write for list 130.

FOR SALE BY

M. A. Wertman Machinery Co., 427 Penton Bldg., Cleveland, Ohio
 Bolt cutter, 24" Landis with dies.
 Boring mill, 52" Niles 2 swivel heads, single pulley drive.
 Boring mill, 52" Gisholt 2 swivel heads, single pulley drive.
 Boring mill, 42" Bullard, 2 swivel heads, self contained c. s.
 Brake, 8' 10 gauge Robinson, new condition.
 Bulldozer, No. 29U Williams & White, motor drive.
 Drill, 34" Hamilton radial, s. p. drive.
 Drill, Henry & Wright 4-spindle, ball bearing, sensitive.
 Drill, Henry & Wright "Viktor" model, power feed, motor drive, new.
 Hammer, 500 lb. Bradley upright helve.
 Lathe, Hendey 14"x6" taper attachment, pan bed.
 Lathe, Pittsburgh 42"x14" triple geared, face plate drive.
 Lathes, Lo-Swing 34"x60 double carriage, used 6 mo. (2).
 Lathes, 9"x24" Sundstrand geared head, motor drive (2).
 Milling machine, Milwaukee No. 14A plain, single pulley drive.
 Miller keyseat, Burr No. 3, 60" table, routing attachment, perfect.
 Press, Bliss No. 34B toggle, draw and lift-out 104".
 Press, Toledo No. 165 toggle, draw and lift-out 84".
 Press, No. 2 Minster o. b. i. new 2" stroke.
 Press, No. 3 Toledo o. b. i. geared, 44" stroke.
 Polishing lathes, Frankfort double end, b. b., 14" spindles, (10).
 Punch & shear, Cleveland W. 18" throat motor drive, architectural jaw.
 Saw, No. 3 Ryerson friction saw, power feed, a. c. motor.
 Shaper, 15" Hendey, A No. 1 condition.
 Turret lathe, Libby 18" heavy, single pulley drive.
 Turret lathe, Warner & Swasey No. 6 g. f. h. (2).

USED AND REBUILT MACHINERY

FOR SALE BY

E. L. Klauber Machinery Co.,

320 South Third St., St. Louis, Mo.

Bench drills, motor drive, 110 volt.
Drill, 28" Prentice, b. g., p. f., sl. hd.
Drills, 3-spindle Dwight slate.
Drill press, 34" Barnes, b. g., s. h. t. a.
Drill press, 26" Superior b. g., sl. hd.
Gear cutter, 30" Whiton.
Gear hobber, No. 6 Schuchardt & S.
Gear miller, automatic, 4" cap.
Grinder, No. 3 Brown & S. cutter.
Grinder, No. 2 Garvin hole.
Grinders, electric bench, 2 h. p. 110
volt a. c.
Lathe, bench, Stark, with collets.
Lathes, 14x6 Davis tool room.

Lathe, 13x6 South Bend.
Lathe, 15x6 South Bend.
Lathe, 16x6 Prentice p. c. g., s. b. g.
Millers, hand, No. 0 Burke.
Pinion and wheel cutter, Stark.
Planer, 30"x30"x9" American.
Presses, 30 ton Southwark, hydr.
Screw mches, 2" Cleveland auto. (2).
Shaper, 14" Steptoe.
Shaper, 21" Cincinnati b. g.
Tapping machine, No. 6 St. Louis.
Tapping mach. 2" Montgomery h. s.
Tapping machine, No. 2 St. Louis.
Tapping mche., No. 1 Garvin auto.

FOR SALE BY

Brownell Machinery Co.,

150 Pine St., Providence, R. I.

BORING MILLS.

51" Bullard vertical (2).

36" Bullard New Era.

DRILLS.

5' Prentice Bros. plain radial s. p. d.

29" Hoefler sliding head.

26" Henry & Wright sensitive radial.

GEAR CUTTERS.

No. 4, 48"x10" Brown & Sharpe.

No. 2 Bilton automatic gear millers.

No. 3, 36"x 8" Brown & Sharpe.

GRINDERS.

No. 14 B. & S. plain 10x48".

No. 1. B & S., surface.

No. 12 B. & S. plain.

Nos. 2 & 3 B. & S. cutter.

No. 11 B. & S. plain 4x30"

14" Blount wet tool.

No. 2 B. & S., surface.

LATHES.

30"x20' Fitchburg.

14"x10' Carroll Jamieson.

24"x16' LeBlond.

12"x 8' Reed, taper.

22"x26' Lodge & Shipley, g. h.

No. 6 LeBlond multi-cut lathes (2).

18"x 8' Prentice Bros.

MILLING MACHINES.

No. 4-A Brown & Sharpe universal.

No. 13-B H. & S. manufacturing.

No. 3-G. H. LeBlond heavy plain,
with dividing heads.

No. 3-H Becker profiler.

No. 12 B. & S. plain manufacturing.

No. 4 Thurston die.

U. S. hand.

METAL CUTTING MACHINES.

12" H. & R. metal cutting band saw.

3" H. & R. cutting-off machine.

PLANERS.

54"x42"x14' Gray, 3 heads.

36"x32"x 8' Powell.

48"x48"x16' Niles-Bement-P., 2 hds.

17"x20"x 4' Whitcomb-Blaisdell.

36"x36"x10' Woodward heavy, 3 hds.

17"x17"x 4' Whitcomb.

SHAPERS

24" Potter & Johnston.

16" Stockbridge, b. g.

24" Hendey friction.

SCREW MACHINES.

41" Gridley single spindle auto.

No. 0 B. & S. wire feed hand.

No. 6 Brown & Sharpe, g. f. h.

3"x36" Jones & Lamson, flat turret.

No. 3 Warner & Swasey, g. f. h.

POWER PRESSES.

No. 5 Manville s. a., p. p.

No. 68 Bliss d. a., inclinable cam.

Torrington double acting.

No. 20 Waterbury s. a. o. b., dial feed.

No. 1 Bliss d. a. cam.

Bosworth foot presses, new.

MISCELLANEOUS.

Band saw, 36" H. B. Smith.

Hammer, 200 lbs. Beaudry champion.

Borer, Crescent single spindle.

Shaft straightenr. Rockford.

Filing machine, Thurston.

Slotter, 12" Bement-Miles.

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Eberle Tanning Co., * * * * * **Westfield, Pa.**

GAS ENGINE.

50 h. p. Bruce-MacBeth gas engine, 300 r. p. m., belt driven to 45 k. w. alternating current generator, 1200 r. p. m., 3 phase, 60 cycle, 220 volt, with direct connected exciter 16 ampere, 125 volt, complete with batteries, ammeter, air compressor and air storage tanks. This machine used only a short time and in excellent condition.

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Boiler, 170 h. p. Heine longitudinal drum, H type, 150 lbs. pressure.

Compressor, Rand, 6x6 Imperial.

Grinder, Besly No. 14.

Pipe machine, No. 14 Jarecki 2½ to 8", q. c., adj. dies.

Shapers, 16" and 20" Cincinnati open ram, 4 step cone drive, (2).

Turret, 1½"x18" Pratt & Whitney.

FOR SALE BY

Taylor-Hall Welding Corporation, 99 Hope Ave., Worcester, Mass.

BUTT AND SPOT WELDERS

Guaranteed to be in perfect condition.

Thomson 137 spot welder.

Thomson 2A butt welder.

Thomson No. 3 butt welder.

Thomson 7AA auto. butt welder.

Thomson 21 automatic butt welder.

Thomson 172-912 spot welder.

Thomson 40-A vert. butt welder.

Thomson 20-A vert. butt welder.

Toledo 10-B butt welder.

Thomson 10-A vert. butt welder.

FOR SALE BY

Miles Machinery Co., * * *

* * * **Saginaw, W. S., Mich.**

Automatics, No. 60 Brown & Sharpe.

Brake, 10' x3/16" Chicago, motor dr.

Bulldozer, No. 4 Williams & W.

Compressor, 295' Curtis 12"x12".

Drill, upright, 24" Cincinnati.

Drill, multiple, 34-sp. Natco No. 30.

Drills, radial, 5', 6' and 8' Western.

Gear cutters, 48" and 60" G. & E.

Grinders, int., Nos. 70 & 75 Heald.

Grinders, 8"x18" & 12"x24" Modern.

Millers, Nos. 2, 3, 4S Cincinnati.

Miller, vert., Nos. 5C & 6 Becker.

Mill, vertical boring, 72" Colburn.

Mill, vertical boring, 96" Betts.

Mill, vertical boring, 120" Niles.

Planer, 30"x30"x8' Cleveland o. s.

Planer, 36"x36"x12' Cincinnati.

Planer, 48"x48"x12' Pond.

Planer, 72"x72"x18' Pond.

Press, No. S134 Ferracute dbl. crk.

Press, No. 66 Consolidated.

Punch, 48" Southwark 2"x2".

Shaper, 25" Springfield.

Threader, 2", 2½" and 3" Acme.

FOR SALE BY

W. P. Little Co., * * * **West 9th & Front Sts., Cleveland, O.**

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Keyseater, No. 0 Baker.

Keyseater, No. 0 Catlin.

Miller, 18" Cincinnati face.

Oil separator.

Planer, 32"x14' Pond, two heads.

A large assortment of lathes, drill presses, milling machines and miscellaneous shop equipment. Send us your inquiries.

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Press, E. G. 22 Ferracute.

Shear, S-24 Yoder splitting.

Shear, No. 13 Niagara circle.

Tumbling barrel, sand blast.

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Turret, 2"x24" Jones & Lamson.

Wiring machine, No. 1 Magee.

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FOR SALE BY

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16"x 8' Lodge & Shipley.	24"x16' American, g. h.
18"x 8' American.	24"x28' American, g. h.
20"x14' Reed-Prentice, g. h.	36"x18' American.
24"x14' American, g. h.	42"x20' Putnam, g. h.

PLANERS.

30"x30"x 6' Woodward & P., 1 hd.	48"x48"x14' Woodward & Powell.
24"x24"x 6' Woodward & P., 1 hd.	10"x7"x30' Pond.
30"x30"x10' Gray planer.	72"x60"x16' Gray.
36"x36"x12' Gray planer.	54"x54"x16' Pond.
36"x36"x14' Gray planer.	18" Gleason, bevel gear.

GRINDERS.

20"x120" Landis.	18"x96" Norton.
20"x144" Landis.	

MISCELLANEOUS.

Bolt cutter, 3" Acme.	Miller, 42"x36"x12' Ingersoll, 4 hds.
Broach, No. 3 LaPointe double.	Miller, Burr keyway.
Drill, 4' Western radial.	Press, 2000 ton United Engineering
Drill, 4' Drees radial.	& Foundry hydraulic.
Gear cutter, 60" Newark spur.	Presses, 350 ton Southwark hydr.
Gear cutter, 72" Gould & E. spur.	Press, 150 ton Caldwell wheel.

FOR SALE BY

Strafer Machinery Company, 14th and Provost St., Jersey City, N. J.

BORING MILLS.

7'-10' Betts extension type.	84" Cincinnati rapid traverse.
72" N. B. P. geared feed, cone type.	60" Bement cone type.
52" N. B. P. geared fd., speed box.	96" Niles cone type.
42" Bullard turret and plain heads.	38" Bullard countershaft attach.
5" bar Newark horiz., knee type.	5" bar Detrick-Harvey floor.
Boring bars, Underwood, portable, 4"x8' with 12" heads \$200 each.	

DRILLS.

5' N. B. P. semi univ. speed box.	4' Cincinnati Bickford speed box.
32" Aurora upright s. h. b. g.	22" Barnes upright W & L. feed.
20" Prentice upright.	4-spindle Garvin sensitive.

GEAR CUTTERS.

No. 4-36" Brown & Sharpe auto.	84" Gould & Eberhardt.
--------------------------------	------------------------

GRINDERS.

No. 2 Cincinnati cutter and reamer.	14x72" Norton plain.
12x20 Fitchburg plain.	No. 6 Bryant hole grinder.

HAMMERS.

400 lb. Chambersburg s. f. steam.	No. 2B Nazel forging.
8000 lb. Chambersburg d. f. steam.	100 lb. Bradley compact type.

LATHES.

54"x27" Pond triple geared.	48"x18' Fiefield belt drive.
22"x10' Drapier cone type.	18"x8' Fairbanks 3-step c., d. b. g.
18"x8' Fay Scott d. b. g.	23"x14' LeBlond heavy duty.
18"x18' Reed c. r., cone type.	26"-48"x16' McCabe 2-in-1.

MILLING MACHINES.

22"x10' slab miller.	No. 1 Brown & Sharpe pl., belt fd.
No. 4 Cincinnati plain, cone type.	No. 2 Garvin hand miller.

PIPE MACHINES.

6" Saunders, new dies, belt drive.	4" Saunders belt drive.
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PUNCH AND SHEARS.

No. 4 Hilles & Jones horiz. punch.	No. 4 H. & J. double end, 48" t.
No. 5 H. & J. single, 48" throat.	92" gate shear 1" capacity.

MISCELLANEOUS.

Centering machine, 3".	Pipe bender, 2" Underwood.
Chain block, 1 ton Y. & T., trolley.	Roll, 30" tinsmith.
Die slotter, Fox.	Saw, No. 1 Klem metal band.
Elevator, d. c. m., portable.	Ship augers, 500.

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Shaper, 20" Whipp, back geared.

Straightener, No. 2½ Corey.

Exceptional values in USED TOOLS:

Band saw, 36" Fox, tilting table.
Bending machine, Champion.
Bolt threader, Acme 2-spindle, with one head, ½" capacity.
Boring mills, Lucas No. 21, (2).
Drill, Barr 4-spindle, 8" overhang.
Drill press, 22" Prentice, rebuilt.
Grinder, 24" Safety Emery Wheel Co. snag grinder.
Grinder, Blount 1½x14 wet tool, m. d.
Lathe, 20"x12" Reed.
Lathe, 12"x4" Hendey, q. c. g.
Lathe, 8x60 Fitchburg lo-swing.
Miller, No. 3B B. & S. heavy plain.
Miller, No. 5 Becker vertical.

Millers, Wisconsin hand, (3).
Planer, 30"x30"x16' L. W. Pond.
Radial, 5' Pond.
Radials, 5' Dreses, single pulley drive, gear box, (2).
Rip saw, No. 2½ Powers, self feed, power.
Screw machine, No. 2½ Garvin.
Thread miller, No. 12 Lees Bradner.
Tilted turret, No. 6 Wood.
Turret lathes, No. 4 Foster, (2).
Turret lathe, No. 3 Cincinnati Acme.
Turret lathe, 24"x26 Pratt & Whitney.
Turret lathe, 21" Gisholt.
Turret lathe, 24" Steinle.

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- No. 510 Niagara straight side single crank press, geared tie rod frame, 4" stroke, belt drive.
- No. 3½B Bliss toggle press, belt drive.
- No. 2½ Bliss open back inclinable press, geared 4" stroke, belt drive, late model.
- No. 74 Consolidated open back gap frame, geared 4" stroke, belt drive.
- No. 165 Consolidated double crank, 37" between housings, 2½" stroke, flywheel, wt. 8000 lbs.
- Pick Eye forging press, 40" between housings, 5½" stroke, 8" diameter shaft, wt. 25000 lbs.

Other Machines

- 15" Dill slotter, rotary table.
- No. 4B Becker vertical miller.
- Nos. 5 and 6 Becker vertical millers.
- No. 3 Cincinnati hi-power vertical miller.
- No. 3 LeBlond miller vertical attachment.
- No. 1 Wilmarth & Mormon univ. cutter grinder.
- 20" Rockford b. g. shaper.
- 16"x96" Landis plain grinder.
- 21" Gisholt turret lathes (2).
- 1½"x10" Millholland screw machines (6).
- Drills, lathes, planers, grinders, screw machines.

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42" King Vertical Boring Mill.
72" Gisholt Boring Mill.
10" Niles Vertical Boring Mill.
10-16" Niles Vertical Boring Mill.
14-20" Betts Vertical Boring Mill.
B.-S. Auto. Nos. 00, 0, 1 and 2.
Gridley 4-spindle $\frac{3}{4}$ ", $1\frac{1}{4}$ " $1\frac{3}{4}$ ", $2\frac{3}{4}$ ".
6" American Universal Radial.
6" American Plain Radial.
6" Mueller Plain Radial.
5" Western Plain Radial.
3" Western Plain Radial.
Natco Multiple Nos. 14 and 30.
Baugh Multiple Nos. 2, 3, 4.
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Rockford Gang 2, 3, 4-spindle.
Barnes Gang 4-spindle.
No. 19-53" Besly Disc Grinder.
No. 21 Besly Disc Grinder.
16x52" Landis Grinder.
14"x96" Norton Grinder.
10"x50" Norton Grinder.
6"x32" Norton Grinder.
30" Diamond Face Grinder.
No. 14 Pratt-Whitney Vertical.
No. 1 Brown-S. Universal Miller.
No. 1 $\frac{1}{2}$ Brown-Sharpe Univ. Miller.
No. 2-A Garvin Universal Miller.
Nos. 2, 3, 4 Cincinnati Vert. Miller.
Nos. 2, 3, 4, 5 Cincinnati Pl. Miller.
No. 4-B, No. 3-BHendey Pl. Miller.
40x22x6" Ingersoll Slab Miller.
50x20x12 Ingersoll Slab Miller.
56x36x12 Newton Slab.
60x60x14 Ingersoll Slab, 2-hds. m. d.
18" Libby Turret Lathe.
No. 2A Warner & Swasey Universal.
No. 3A Warner & Swasey Universal.
No. 4 Warner & Swasey Univ.
72"x58" Niles-Bement-Pond M. D.
50"x30" New Haven, M. D.
48"x20" N-B-P Motor Drive.
42"x39" Putnam Motor Drive.

42"x50" American Motor Drive.
42"x50" Putnam Motor Drive.
42"x18" American Motor Drive.
36"x20" American Motor Drive.
30"x12" Lodge & Shipley Grd. Hd.
30"x12" American Geared Head.
30"x12" H-S-G Geared Head.
26"x22" Boye & Emmes M. D.
36" Cincinnati Gear Cutter.
36", 60", 72", B. & S. Gear Cutter.
90" Pratt-Whitney Gear Cutter.
24", 54" Gleason Gear Planer.
6", 11", 18" Gleason Gear Generator.
48", 72" Gould & E. Gear Cutter.
No. 12 Barber-Colman Gear Hobber.
No. 5-Lees-Bradner Gear Hobber.
15-Ton Lucas Forcing Press.
No. 56 Toledo Press.
No. 1 Bliss Toggle Press.
Nos. 4, 7, 8 Greenard Arbor Press.
34", 1 $\frac{1}{2}$ ", 2" Ajax Upsetter.
1 $\frac{1}{2}$ ", 2 $\frac{1}{2}$ " Acme Upsetter.
12"x12" Ingersoll Compressor.
10x9" Penn Compressor.
No. 3-H Hilles-Jones Bending Roll.
3" Bertsch Angle Bender.
20" Cincinnati Rotary Table.
No. 2-B Gorton Cutting-Off Mche.
15" Newton Slotter.
16", 20", 24", 32" G. & E. Shaper.
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16" Stockbridge, Back Geared, New.
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24" Stockbridge, Back Geared, New.
No. 2, No. 2-X Garvin Tappers.
7" Baker Tapper.
RH-3 Revolver.
26"x26"x8" Gray Planer.
36"x36"x12" D. & H. Openside.
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72"x72"x18" D. & H. Openside.
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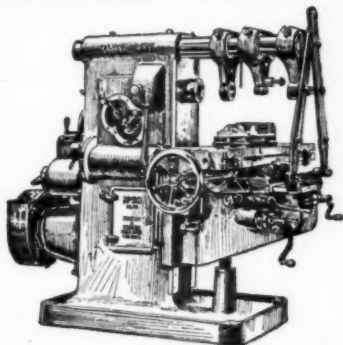
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Stark precision lathe.
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Ames precision lathe.
7" x 8' Cleveland, geared head.
7" x 8' Carroll-Jamieson, new, q. c.
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8x60" & 3x60" Fitchburg, Lo-Swing

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Acme 1/2" cap., wire feed column.
No. 4 DeFance, 1 1/2" capacity.
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1 1/2" Milholland.
2x24 and 3x36 J. & L.
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14" Niles, traveling head.
14" Steptoe, crank.
16" American tool room.
16" O. & S., b. grd., new, low price.
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Nos. 1, 1 1/2, 2, 2 1/2 Robinson, new.
No. 2 1/2 o. b. i. Consolidated.

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Electric Drills, Black & Decker.
No. 4 Duntley electric.
22", 24", 26", 28" and 32", sliding hd.
32" Hoefer, sliding head.
6" Ceiling drill.
25" Kokomo high speed.
4-spindle Reed sensitive.
44" Stover.
Hole Hog, No. 66-D, 7-spindle.

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Briggs "B" high duty.
One No. 1-Y Brown & Sharpe, plain.
No. 2 Kemp Smith plain.
No. 3 Kemp Smith plain, new.
No. 25 Bilton.
No. 25 Becker plain, power feed.
No. 2 H Brown & Sharpe plain.
Oesterlein 24x7 1/2 x 18 plain.
Briggs "A" high duty, 24x36" table.
No. 7 Becker, Lincoln type.

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Nos. 1 & 78 W. & M. surface.
6" x 15" Fitchburg plain.
12" x 36" Cincinnati universal.
16" x 42" Landis universal.
36" and 66" Yates plate.
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Schmitt cylinder grinder.
J B X, W. & M. tool and cutter.
No. 10 Besly 18" double disc.
No. 20 Bryant, chucking.

MISCELLANEOUS

Band saw, Clark, compound.
Band saw, Napier 10" x 10".
Blower, No. 6 Piqua, pressure.
Blower, positive pressure, Leiman.
Boring mill, Colburn No. 3, tur. hd.
Boring mill, Sellers 50" car wheel.
Boring mill, 72" column.
Brake 6", double truss.
Brake 10", Chicago Steel, 16 ga.
Brake 10", Keene, 18 ga.
Broaching mchs., 1 and 3 LaPointe.
Compressors, 6x8, 8x8 and 9x8.
Gear cutter, No. 3-26 B. & S.
Gear miller, Bilton No. 1.
Hammer, 150 lb. Standard drop.
Hammer, 200 lb. Bradley.
Pipe machines, 2", 4" & 6".
Planer, 36" x 36" x 14' Gray, heavy duty.
Planer, 36" x 36" x 14' Gray, 2 heads.
Planer, 42" x 42" x 12' Gray, 2 heads.
Planer, 48" x 48" x 16' Cincinnati, 4 hd.
Punch & shear, 1/2 x 10" throat.
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High Speed.
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Shear, No. 352 Robinson.
Shear, No. 20 Quickwork, 30" throat.
Shear, circular, Pettingell, 60" thrt.
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- A. 47 1—Heald No. 75 Wet Internal Grinder and c. s.

- A. 50 1—No. 2 Oakley Cutter Grinder, Universal and c. s.

- A. 52 1—10"x36" Norton Grinder and c. s.

- Ad. 49 1—6"x32" Norton Plain Grinder. Good condition.

- P. 100 1—7½"x72" No. 16 Brown & Sharpe Plain Grinder. Good cond.

- L. 290 1—10"x48" Brown & Sharpe Plain Grinder. Ex. cond. No. 14.

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- Au. 15-2 1—No. 18 Bryant Chucking Grinder, No. 10 Universal Chuck.

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- A. 8 1—18"x8" Greaves-Klusman Lathe, 3 step cone F. D. B. G. quick change and 2 S. c. s.

- A. 21 1—14"x8" Champion Lathe, 3 step cone F.D.B.G.Q.C. & 2 S.c.s.

- G. 44 1—16"x6" Greaves & Klusman S. B. G., Semi Q. C. G., Turret on carriage, Double Speed C-S. Factory rebuilt.

- P. 516 1—16"x8" Greaves-Klusman S. B. G., Semi Q. C. G., Pan, Double Speed C-S. Factory rebuilt.

- P. 66 1—18"x8" LeBlond Lathe, 5 St. Cone, Sgl. Bk. Cr. Swings 19½".

- P. 76 1—18"x8" Lodge & Shipley Patent Head Lathe.

- P. 501 1—24"x12" Greaves-Klusman Lathe, hvy. type, quick change gear.

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- P. 42 1—28" Gisholt Turret Lathe, 4 Way Tool Post on Carriage.

- P. 51 1—1"x7" Acme Hand Screw Machine Power Feed to Turret.

- G. 127 1—No. 2 Warner & Swasey Hollow Hex Turret Lathe.

- P. 901 1—2¼"x11" Acme Hand Screw Machine.

- P. 506 1—2¼"x26" Acme Flat Turret Lathe with bar equipment.

- G. 124 1—3¼"x36" Acme Flat Turret Lathe, Chucking and Bar Equip.

- P. 753 1—No. 3 Acme Universal Flat Turret Lathe with Chucking Equip.

MILLING MACHINES—PLAIN

- Ad. 25 1—No. 00 B. & S. Plain Milling Machine with Countershaft.

- A. 27 1—No. 2 (Plain) B. & S. Miller, 4 step cone S. B. G. Geared Fd.

- A. 31 1—No. 24 Plain (Ohio) Milling Machine.

- A. 34 1—No. 0 B. & S. Plain Milling Machine 4 step cone.

MILLING MACHINE—VERTICAL

- P. 155 1—No. 3 Cincinnati High Power Vert. Milling Mche. Good cond.

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- P. 2659 6—¾" Cincinnati Automatic Screw Mche., 5 spdl. Good cond.

- Pi. 354 6—No. 52, ¾" National Acme, 4 Spindle Automatic.

- P. 4565 1—1½" Cincinnati Automatic Four Spindle Screw Machine. New.

- S. 6 1—2¼" Cleveland Automatic Screw Machine.

- P. 700 1—4¼" Gridley Single Spindle Auto. Screw Mche. Motor Driven.

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14"x 6' LeBlond, l. c. g. and chuck.
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14"x 6' Porter, compound rest and
taper attachment, l. c. g.
16"x 8' Bradford, c. r., loose change
gear.
16"x 8' Monarch, compound rest,
standard pattern.

18"x 8' Boye & Emmes, c. r., q. c. g.
16"x 8' Hendey, c. r. and t. a., q. c. g.
without tie bar.
18"x 8' Prentice, compound rest,
l. c. g., chuck.
18"x 10' Star, 4-s. c., s. g., with 16"
4-jaw ind. chuck.

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No. 0 Brown & Sharpe auto.
12" W. & S., friction head.
14" W. & S., friction head, (2).
16" W. & S., friction head.
No. 4 Warner & Swasey, p. h., a. c.
and b. f.
No. 2 Warner & Swasey, p. h., a. c.
and b. f.
No. 4 Warner & S., g. f. h., a. c. and
b. f.
No. 55 Nat'l Acme 4-spd. auto.

No. 3 Foster g. f. h. turret screw mch.,
with p. f. carriage and turret.
24" Cleveland model "A" auto.
screw mch., with 5-hole turret.
No. 2-G Brown & Sharpe auto-
matics (2).
No. 2 Brown & Sharpe turret form-
ing.
1-1/2"x 10" Millholland, geared friction
head with p. f. to turret (3).
1"x 7" Millholland turret screw mch.,
pl. hd. auto. ck., bar feed hand fd.
cross slide, with power fd. tur., new.

DRILLING MACHINES

No. 1-S Garvin duplex.
3' American sensitive radial with
t. a. and elevating table.
4' Mueller, gear box, sgl. pulley dr.
5' and 6' Americans, tr. grd., 8-speed
change, gr. box, sgl. pulley drive.
6' Western, with speed box, tap. att.
12-spindle Moline, cam fd., two tbl.
No. 14 Natco.
3-sp. Edlund, high sp., ball bearing.
Fox multiple spindle, sliding head,
arranged for 12 spindles (4).

No. 22 Colburn, sgl. sp., hvy. duty,
1 1/2" cap., with solid spindle and
flange for receiving multiple drill
heads, new, (2).
No. 30 Natco, belt driven.
No. 44 Colburn, sgl. sp. heavy duty,
2 1/2" cap., with solid sp. and flange
for receiving multiple drill heads,
new, (2).
No. 34 Demco high speed bench
drill with C spindle, new.

The Strong, Carlisle & Hammond Co

Low Priced Used Machine Tools

See Your Inquiries

MILLING MACHINES

No. 0 Bickett, hand, bench type, (2).
No. 2 Cincinnati vertical, s. p. d.
24"x18"x60" Ingersoll, Farwell vertical milling head.

Becker 2-spindle, with rotary table.
13-B Brown & Sharpe, plain manufacturing.

SHAPERS AND PLANERS

20" Hendey friction, (2).
22"x22" x 5' Putnam planers, (2).
72"x72"x26" Fitchburg, four heads.

30"x30"x10' Woodward & Powell, three heads.
38"x38"x10' Pond, 2 heads on rail.

CENTERING MACHINES

Centering machines, single spindle Cadillac.

GRINDERS

No. 2 Cincinnati univ., latest type.
No. 3 Diamond wet tool grinder with drop apron, new.
No. 4 Diamond wet tool grinders with drop apron, new.
No. 10 Brown & Sharpe plain.
No. 14-48" B. & S. plain, (3).
No. 6-A Bryant internal.
Webster & Perks, h. s., b. b., double spindle polishing lathes, cabinet base (6).
No. 10-18" Besly disc grinder.

No. 3 Brown & Sharpe planer type surface grinder.
No. 6-18"-1 Besly disc grinder.
Gisholt universal form tool grinder.
Type "DE" Hisey-Wolf internal.
No. 11 Brown & Sharpe pl. grinders.
Plain emery wh'l stand with column.
C3A Grand Rapids duplex drill grinders with wet att., new.
Landis Internal, with countershaft.
No. 2 Brown & S. Surface Grinder.

MISCELLANEOUS

Arbor press, No. 28 Atlas.
Boring and Turning Mills, 52" King Vertical, 2 swivel heads, motor driven (2).
Boring or drilling machine, No. 1-S Garvin duplex horizontal.
Broach, No. 2 double Lapointe.
Gear Cutter, No. 4-48" B. & S.
Hand brake, 5' Dreis & Krump.
Keyseater, No. 0 Baker, practically new.

Layout plates, 30"x36" and 36"x48" C. I., mounted on portable stand.
Oil extractor, No. 150 Curtis.
Oil extractor, large size American, with pedestal for motor drive.
Pipe machine, No. 300 Oster, 1" to 2".
Pipe machine, 8" Jarecki, No. 88.
Power Press, Max Arms S. S. Plain, 5" stroke, on inclined legs.
Scleroscopes, Shore.
Slitting shear, No. 206 Niagara, pwr.

Cleveland, Ohio; Detroit, Michigan

NEW YEAR BARGAIN

RADIALS AND UPRIGHT DRILLS

6' American Tr. Grd. Pl. Radial, g.b.d.
 5' Prentice Bros. Pl. Radial, arr. form. d.
 5' & 4' Drees Hi-Duty. Pl., g. b. d.
 5' American Tool Wks. t. g. Pl., g. b. d.
 4' Fosdick Plain Radial, g. b. d., late.
 4' Cinti-Bickford Plain, g. b. d.
 4' Amer. Tr. Grd. Pl. Radial, g. b. d.
 3½' Mueller Plain Radial, gear box drive.
 2½' Fosdick Pl. Radial, cone pulley dr.
 Nos. 1 & 3 W. F. & J. Barnes Hor. Rad.
 No. 1 S. S. Natco, Garvin Hori, Duplex.
 28' & 26' W. F. & J. Barnes Up., latest.
 28' Aurora Upright Drill, tapping att.
 26' Prentice Bros. Upright Drill.
 26' W. F. & J. Barnes Up. t. a.
 26' Barnes ALL GEARED Upright.
 25' Snyder Upright Drill.
 24' Rockford Upright Drill.
 24' Milwaukee Upright Drill.
 24' Sibley Upright Drill.

22' Superior (Kokomo Hi-Speed) Drill
 22' Aurora Upright Drill, tap. att.
 22' W. F. & J. Barnes Upright, t. a.
 20' W. F. & John Barnes 4-spdl. Gang
 3-spindle W. F. & J. Barnes Gang 26'
 6-spindle 20' Hoefter Gang.
 6-spindle Acme Horiz. Auto. Driller.
 Detroit 5-spindle Horizontal Dr. Press.
 Leland Gifford sgl. spdl., b. b., No. 1 M. T.
 Demco single spindle, b. b. No. 2 M. T.
 Avey 2-sp. b. b., No. 2 Morse taper.
 No. 25-24' Foote-Burt Heavy Duty.
 Henry & Wright 6 & 2-Spindle B. B.
 Drills, No. 2 Morse Taper.
 No. 12 Pratt & W. Multiple, 8 spindle.
 No. 0 Fox Multiple, 6-spindles.
 No. 1 Fox Mult., equipped with 10 spdl.
 No. 3 Fox Mult., equipped 12 spindles.
 No. 11 P. & W. Mult., equip. 6-spdl.
 No. 37 Natco Mult., equip. 20 spindle.

ENGINE AND TURRET LATHES

42"x30' Amer. q. h. Lathe, q. c., late.
 36"x30' Amer. tr. grd., q. c., late type.
 36"x22' Springfield tr. grd., stan. ch.
 36"x18' Lodge & Shipley q. c.
 36"x16' L. & S. sel. g. h., q. c.
 30"x16' N-B-P stand. change, late types.
 30"x16' American grd. hd., q. c.
 26"x18' Schumacher & B. q. c. Lathe.
 26"x14' Gleason standard change.
 24"x12' American Tool Wks. q. c.
 24"x12' Bradford standard change.
 30"x14' Lodge & Shipley, q. c.
 18"x14' LeBlond standard chang
 24"x10' G. & K. q. c.
 24"x10' Boye & Emmes q. c. Lathe.
 16"x10' G. & K. q. c., taper att.
 22"x12' Whitcomb-Blaisdell semi-q. chg.
 21"x12' LeBlond grd. hd., q. c., lathe.
 21"x10' LeBlond q. c. Lathe.
 20"x10' Chard q. c. taper attach.
 20"x10' American grd. hd., q. c.
 20"x10' Lodge & Shipley grd. hd., q. c.
 18"x14' Johnson g. h., q. c., taper att.
 18"x8' Monarch quick change.
 18"x8' American q. c., t. a., late type.
 18"x8' LeBlond q. c. Lathe.
 18"x8' L. & S. sel. grd. hd., q. c.
 16"x10' Hendey, yoke hd., q. c., t. a.
 16"x8' G. & K. grd. hd., q. c., t. a.
 16"x8' L. & S. selective g. h., q. c.

16"x8' and 16"x6' Hendey yoke head
 q. c. Lathe, taper att., late type.
 17"x5' LeBlond RAPID PRODUCT
 14"x8' & 14"x6' American High-Duty
 geared head, quick chang. m. d.
 16"x6' Monarch quick change Lathe.
 14"x6' L. & S. sel. grd. hd., q. c., late type.
 14"x6' Reed-Prentice, grd. hd., q. c.
 14"x6' Hendey tie bar., q. c. t. a.
 No. 9 LeBlond Multi-Cut Lathe.
 8"x108" Lo-Swing with 2 carriages.
 No. 1-B Foster Univ. Hol. Hex. Turret.
 18" Libby type A turret, 3½" sp. hole.
 3"x36" J. & L. dbl. spdl. Turret.
 3¼"x40" Greenlee Tur., bar equip.
 3"x36" J. & L. Turret, chuck equip.
 Nos. 2, 4, 6 Warner & S. Turret.
 Nos. 2, 4, 6 Foster Turret.
 21" Gisholt turret, t. a., late type.
 13" Gisholt Turret, taper att.
 No. 4 Southworth Turret.
 No. 2 Bardons & Oliver Turret.
 No. 4 Warner & Swasey Univ. Turret.
 21"x10' LeBlond, 3-way Turret and
 roller back rest on carriage.
 No. 4 B. & S. Wire feed Screw Mche.
 No. 4 Bardons & O. Turret lathes.
 No. 4 Millholland Turret, g. h., m. d.
 1" Biggs Hand Screw Machine.

EASTERN MACHINERY CO

We also Buy machinery

built and Machine Tools aranteed

GEAR MACHINERY AND GRINDERS

No. 12 Barber-Colman Gear Hobber.
No. 5-A Lees-Bradner Gear Hobber.
18-H Gould & E., Hi-Duty Gr. Hob.
16^a Cincinnati Gear Hobber.
Nos. 6, 61, 615 Fellows Gear Shapers.
20^a Ingle Gear Tooth Rounding Mach.
11^a & 18^a Gleason Bevel Gr. Gener's.
6^a Gleason Bevel Gear Generator.
No. 6-72^a B. & S. Auto. Sp. Gr. Cut.
No. 5-48^a B. & S. Auto Spur Gr. Cut.
No. 3-26^a B. & S. Aur Gear Cut.uto. Sp
No. 3-36^a Cin. Auto Spur Gear Cut.
No. 22-12^a Heald Rotary Surface.
24^a Cincinnati Auto. Spur Gear Cutter.
84^a Diamond Face Grinder, arr. for m.d.
No. 2 LaSalle Automatic Surface.
No. 3 Wilmarth & M. Auto. Surface.
14^a P. & W. Vert. Surf. Grind, m. c.
8^a Heald Grinder & Surf., style 200.
No. 0 LaSalle Hand Feed Surface.
Nos. 70 & 75 Heald Internal Grinders.
No. 70 Heald Int., clutch in head.
No. 60 Heald Cyl., late type, complete.
Capital Internal, collet attachment.
No. 120 Gardner Double Disc.

SHAPERS AND PLANERS

26^a Smith & Mills Triple Grd.
24^a Gould & Eberhardt b. g. Crank.
24^a Steptoe triple grd. Shaper.
20^a G. & E. h. d., b. g., Crank.
16^a Hamilton heavy duty, b. g., Crank.
16^a Kelly hvy. duty b. g. Crank.

No. 2 Gardner b. b. Disc, with press.
No. 4-23^a Gardner Disc.
No. 6-26^a Gardner Disc.
No. 10-18^a & No. 14-30^a Besly Disc.
Walker single stroke Surface Grinder,
10^a diam., magnetic chuck.
No. 8-40^a Gardner Disc with Press.
No. 120 Gardner Combination Disc.
Yankee Twist Drill Grinder.
Oliver Drill Point Grinder.
10^ax24^a Norton Plain, late type.
6^ax18^a Landis Plain, self-contained.
14^ax50^a Norton Plain Grinder.
No. 1-4^ax20^a Morse Plain Grinder.
6^ax32^a & 10^ax36^a Norton Plain, late.
10^ax36^a & 10^ax52^a Landis Plain self-
cont. grinders, late.
8^ax30^a Modern Plain, self-contained.
No. 2-12^ax36^a Cincinnati Plain.
10^ax24^a & 12^ax36^a Landis Pl., self-con.
16^ax48^a Landis self-cont. crank shaft.
Nos. 2 & 3 Brown & Sharpe Universal.
No. 3 B. & S. Univ. Tool & Cutter.
No. 2 Oakley Univ. Tool & Cutter.
No. 1¹/₂ Cinti Univ. Tool & Cutter.

MILLING MACHINES

No. 4 B. & S. Univ., c. p., complete.
No. 3 Hendeby Univ., c. p., complete.
Nos. 3 B. & S. Univ., c. p., comp.
No. 2 Cinti Univ., c. p., comp., late.
No. 15 Garvin Vert. Spindle.
No. 3 B. & S. Vertical, sgl. pulley.
No. 2 Brown & Sharpe Vertical.
No. 1¹/₂ Owens Univ., cone pul. compl.
No. 1¹/₂ LeBlond Univ. cone p., comp.
No. 1 Hendeby Univ., cone pul. compl.
No. 4 Cinti. Pl., s. p., p. r. t.
No. 3 Cincinnati Hi-Power Plain, c. p.
No. 3 Cinti. Pl., s. p., late type.
No. 3 Hvy. Ohio Plain, c. p., p. r. t.
No. 3 Brown & Sharpe Plain, c. pulley.
No. 3 Kempnath Plain, cone pulley.

No. 13-B B. & S. Pl., taper spindle.
Nos. 2 & 3 Cincinnati Plain, cone pulley.
No. 2 B. & S. hvy. Plain, cone pulley.
No. 1¹/₂ B. & S. Plain, cone pulley.
No. 0¹/₂ Cincinnati Plain, cone pulley.
28^a Cincinnati Semi-Auto. Face.
18^a Cincinnati Automatic Miller.
18^a Cincinnati Plain Mfg. Millers.
Gooley & Edlund, Briggs type Mfg.
No. 7H Becker Lincoln type MFG.
No. 6 Whitney Hand Miller.
No. 2 Bristol b. b. Hand Miller.
No. 2 Knight Milling and Drilling Mche.
No. 3¹/₂ Fox Hand & Power Millers.
48^ax34^ax8^a Ingersoll Slab, adj. rail.

(Continued on next Page)

3 E. Pearl St., also
31 Spring Grove Ave.,
What have you to Sell?

CINCINNATI, O.

Rebuilt and Guaranteed Machine Tools

(Continued from Preceding Pages)

MISCELLANEOUS

Air Compressor, 18x12x12 Worthington, dbl. steam drive, cap. 700 cu. ft.
Air Compressor, 8½"x10" Worthington, b. d.
Air Compressor, Ingersoll-Rand E. R. I., belt drive.
Arbor Press, No. 5 Greenard.
Arbor Presses, Nos. 3 & 3½ Greenard, on stands.
Arbor Press, No. 55 Atlas Pwr., b. d.
Automatics, Nos. 52, 53, 54, 55, 56, National Acme.
Bolt Cutters, 1" Acme Class "A".
Bolt Threader, 1" Landis, lead screw.
Bolt Thread, Mche., 1" Landis.
Bolt Thread Mche., 1" double spindle, Landis with lead screws, 95% new.
Bolt Thread Mches., 1", 1½" and 2" Landis, double spindle.
Boring Mill, 72" Bickford vert., 2 hds.
Boring Mill, 51" Niles vertical, 2 hds.
Boring Mill, 51" Bullard vert., 2 hds.
Boring Mill, 42" Bausch vert., 2 hds.
Boring Mill, 36" Bullard NEW ERA TYPE vertical.
Boring Mill, 30" King vertical, turret head, power rapid traverse.
Boring Mill, 30" Gisholt vert., turret head, power rapid traverse.
Boring Mills, 24" & 36" Bullard vert., rapid production, turret and side hd.
Broaching Machines, Nos. 2 & 3 J. N. LaPointe Double.
Broaching Machine, No. 3A LaPointe (Hudson).
Broaching Mche., No. 2 J. N. LaP.
Broaching Mche., No. 3B J. N. LaP.
Chucking Machine, No. 22 N. Britain Automatic, 1/000 serial.
Chucking Lathe, No. 6A Potter Johnston auto., serial in 18,000's.
Chucking Lathe, No. 5-A Potter & Johnston Auto., serial in 20,000's.
Drill, Gun Barrel, No. 1 P. & W. 2-sp.
Forcing Press, 15 ton Lucas Pwr., b. d.
Grinder, No. 4-B Detroit Centerless.

Grinder, Springfield Swing Frame, arranged for motor drive, NEW.
Hack Saw, 13" 16" Peerless H-S. Pwr.
Hack Saw, 12x12" Racine, High Speed Power.
Hack Saw, 6"x6" Racine, High Speed, Power.
Hammer, 25 lb. Little Giant Trip.
Hammers, 40 & 60 lb. Bradley Helve.
Hammer, ¼" Schuster Riveting.
Hammer, No. 3A High Spd. Riveting.
Hammer, No. 3A Hi-Spd. Riv., h. d.
Hammers, No. 1-AA High Spd. Riv.
Keysaters, No. 5 Mitts & Merrill.
Keysater, No. 0 M. & M., cap. ¾".
Press, No. 3 Bliss, Stiles pattern, Pwr.
Press, DNo. 2 Ferracute O. B. I. cam action Power, flywheel drive.
Press, D. D. No. 2 Ferracute O. B. I. cam action Power, flywheel drive.
Press, No. 73½ Bliss sgl. crank, s. s. Power, with side shear.
No. 63 Consolidated sgl. crank, s. s. Power, arr. for m. d.
Press, 150 ton Elmes Hyd. Tire.
Polishing Mche., Blevaney, type "A".
Profilers, No. 12 P. & W. 2-spindle.
Profiler, No. 1 Garvin, 2-spindle.
Rivet Spinner, No. 80 Grant Noiseless.
Shear, 6" Toledo Power Squaring, 14 gauge cap.
Shear, No. 272 Niagara 72" Power Squaring, cap. 14 ga.
Shear, 72" Kutschied Power Squaring, 12 gauge.
Tapping Mchs., Nos. 1 and 2 Garvin Auto.
Taps, 4½"x12" and 6"x14" Pratt & Whitney.
Winfield Electric Spot, cap. 12 pieces ¼" material.
Winfield Automatic Electric, cap. 2 pieces of ¼".
Weider, Winfield Electric Butt, cap. ½" rods.

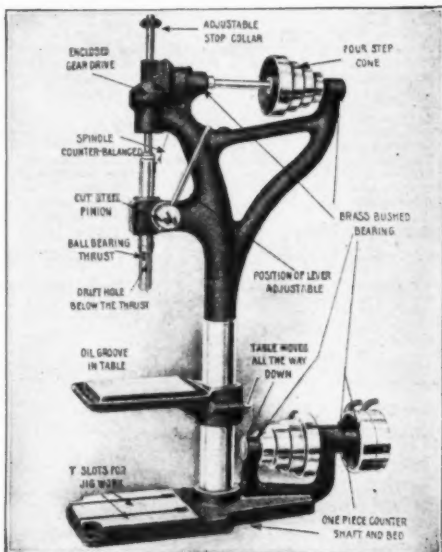
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We also buy machinery—what have you to sell?

EASTERN MACHINERY CO.
408 E. Pearl St., or
3261 Spring Grove Ave.; Cincinnati, Ohio

Bench Drills only \$35

While They Last!



**Inclosed Gear Drive—Raw Hide Pinion—Four Step Cone
Bronze Bushed Split Journals**

Safe Working Speed 2,400 R. P. M.

FIRST COME—FIRST SERVED!

Passman Brothers

705 W. Washington Blvd.,

CHICAGO, ILL.

Bath's Guarantee

Boring Mills—Horizontal

3¼" P. & H. motor drive.

Boring Mills—Vertical

44" Baush, 2 heads, belt drive.

48" Colburn, 2 heads, arr. m. d.

51" Niles-Bement-Pond, sgl. pul.

72" Cincinnati, 2 heads, motor dr.

84" Niles-Bement-Pond, 2 heads.

100" Niles, 2 heads, gear feed.

10' Betta, 2 hds., hvy. duty, m. d.

10'—16' Bement-Miles with extension head.

10'—16' Niles, 2 hds., friction fd.

16'—24' Niles, with central bor. hd.

Drills

4' Hammond sensitive radials with tapping attachment.

4' Prentice radial, motor drive.

6' Pond radial, belt drive.

8' Cleveland wall radials.

No. 310 Baker, hvy. duty, 3" cap.

No. 25 Foote-Burt heavy duty 3", capacity.

16-spindle Fox, No. 1 taper.

2-spindle Foote-Burt, hvy. duty.

4-spindle Foote-Burt.

4-spindle Moline, 2" capacity.

Forging Machines and Bulldozers

2" Ajax geared, cast iron bed.

4" Ajax geared, steel bed.

No. 2 Ajax high speed bulldozer.

¾" Waterbury cold nut machine roller feed.

¾" Waterbury Farrell D. S. O. D. cold header.

½" Waterbury Farrell trimmer with hopper feed.

¾" Thread Roller.

Grinders

84" Diamond face, motor drive.

26" horiz. disc grinder, belt drive.

Grinder stands and drill grinders.

12x72 Norton arr. M. D.

Keyseaters

No. 2 Baker Bros., power feed, belt drive.

Lathes

16"x6' Pratt & Whitney, tool room, taper attachment.

30"x14' Schumacher & Boye, cone drive.

36"x14' Schumacher & Boye, triple geared.

Milling Machines

Type B Briggs Lincoln millers.

20"x7"x18" Oesterlein, belt drive.

No. 0 Rockford, plain, belt drive.

No. 2-B Heavy Brown & Sharpe, M. D.

No. 4 Cincinnati hi power, vertical.

24"x24"x20' Ingersoll, 3 heads.

CYRIL J. BATH & CO., E. 70th &

Cleveland Stock

Planers—Openside

48"x60"x16' Detrick & Harvey, 3 heads.

Planers and Shapers

36"x36"x18' Cincinnati heavy duty, 4 heads.
60"x60"x20' Cincinnati, 3 heads, Motor Drive.
96"x96"x16' Pond, 4 heads, belt drive.
14'x10'x24' Bement, 4 heads, Motor Drive.
60" Morton draw cut shaper.
24" Queen City Shaper, Cone Drive.

Punches and Shears

48" throat Bement-Miles, arch. jaw, 1 1/4"x1".
No. 90 Amplex triple combination punch, plate shear, bar, T
and angle cutter.
Garrison steel bed alligator shear, 2" capacity.
Niagara circle shear, 1/4" capacity.
1/2" cap. Lennox rotary shear.
3/4" cap. Lennox rotary bevel shear.

Riveters and Saws

36"x20"x10" Allen riveter, cap. 3/4" rivets.
9A Racine power hack saw, cap. 12"x15".

Slotters

20" Bement crank, cone drive. 48" Niles-Bement-Pond, m. d.
36" Bement crank.

Tumbling Barrels

18"x30"x48" steel lined, in pairs. Roller bearings, with dust
exhaust, quick acting. Double cover plates. Mounted
so that one may be loaded while the other idles.

Turret Lathes and Screw Machines

24" Gisholt, cone drive.
No. 1-B Foster universal turret lathe.
3"x36" Jones & Lamson, geared head.

MISCELLANEOUS

Bolt cutter, 1 1/4" Landis, dbl. hd.	Hammers, 100 lb. Bradley hori-
Blowers, No. 4 Root, positive	zontal helve.
pressure, also Nos. 1 and 2,	Hoist, 5-ton Euclid electric, A. C.
Buffalo Forge.	Pipe Machine, Merrill, 8" cap.

Machinery Av., N. E., Cleveland, O.

Exceptional Offers In Good Used

These are not worr

HORIZONTAL DRILLING AND BORING MACHINES

- 1—No. 2 1-spindle, Rockford.....\$425.
- 1—Double head gun barrel 4" cap., 9'9" bed, like new, Diamond.....\$500.
- 1—2-spindle Rockford, spindle att. to each end of 2"x6' table practically new.....1,100.

CHUCKING MACHINES

- 2—No. 6-A semi-auto. with equipment, Potter & Johnson, ea.\$400.

CUTTING-OFF MACHINES

- 1—6" accelerated speed, H. & R.\$250.
- 2—Cold metal circular saws No. 14, 18" saw, Higley, ea.\$175.

DIE SINKING MACHINES

- 1—No. 2 Cooper.....\$210.
- 1—No. 2 with swivel vise, P. & W.\$325.

MULTIPLE SPINDLE DRILLING MACHINES

- 1—Type 32, 42-spindle, little used, Nat. Auto. motor drive.....\$2,800.
- 1—Type 32, 60-spindle, little used, Nat. Auto. motor drive.....\$2,900.
- 1—Type 32, 68-spindle, little used, Nat. Auto. motor drive.....\$3,100.
- 1—No. 1, Type 10-B, 20-sp. Baush \$300.
- 1—No. 1, 8-14" spindles with No. 2 Morse taper, 16" rd. hd. Baush \$300.
- 1—No. 2, 6-24" spindles with No. 3 Morse taper, Baush.....\$350.
- 1—2-spindle Foote-Burt adjustable cylinder bor. and ream. mche. 550.
- 1—4-spindle. Moline adjustable cylinder boring and reaming machine.. 1,000.

SENSITIVE DRILL PRESSES

- 3—20" Friction dr., W. F. & J. Barnes, ea.\$25.

TOOLS—(NEW AND USED)

Arbors
Chasers
Chucks
Collets
Clamps

Die Heads
Dogs
Drills
Reamers

Cutters (milling and hobbing)
Snap gauges—(adjust. & non-adjust).
Grinding wheels
Precision measuring tools

UPRIGHT DRILL PRESSES

- 3—20" swing, heavy duty style F., Baker Bros.....\$150.
- 1—24" heavy duty, Foote-Burt\$150.

GEAR CUTTING MACHINES

- 1—15" bevel gear generating machine, Gleason (rougher).....\$325.
- 1—24" Dia. 10" travel of cutter Gould & Eberhardt.....\$550.
- 1—18"x12" Gould & E. high duty.700.

CUTTER GRINDERS

- 1—Chaser and die grinder, Geometric,\$60.
- 1—Ingersoll cutter grinder.....150.
- 1—Sellers drill grinder, cap 4" to 2"60.

PLAIN AND CYLINDRICAL GRINDERS

- 1—10"x72" plain with cam-shaft att., thoroughly overhauled Norton\$800.
- 1—14"x72" plain, thoroughly overhauled, Norton.....\$850.
- 1—No. 11 plain, Brown & S.....\$175.
- 1—No. 14 plain, Brown & Sharpe excellent condition.....\$775.

SNAGGING GRINDERS

- 4—2 wheel, Model E, 2x2x24" wheel, Norton, ea.....\$100.

SURFACE GRINDERS

- 1—Vertical planer type, table 30"x78" vertical spindle with 24" ring wheel, excellent cond. Springfield ..\$2,600.
- 3—Ring, with magnetic chuck, 8" No. 200, Heald.....\$100.

UNIVERSAL GRINDER

- 1—No. 2, 10"x30" Taft-Pierce.....\$500.

Being offered for sale direct to

Inspection invited by OLD ESTABLISHED

Correspond with H. E. Behn, 2 Main Street,

Large and Machine Shop Equipment

Old or discarded Tools

HAMMERS—DROP FORGED

- 2000-lb. ex. cond., Chamb.,...\$1,600.
- 1200-lb. Waterbury-Farrell.....\$275.
- 800-lb. Waterbury-Farrell.....\$275.

ENGINE LATHES

- 20"x12' Blaisdell, compound rest, cone head 100.
- 24"x12' Reed, comp. rest, cone hd., large 4-jaw chuck.....200.

HIGH PRODUCTION LATHES

- 2—6"x6' low swing, equipped with special block tool holders, Fitchburg, ea.\$450.
- 2—14' Fay auto., Jones & L., ea..\$600.

SPEED LATHES

- Several ranging from, ea.....\$5 to \$50.

TURRET LATHES

- 3"x36", Jones & Lamson, ea...\$400.
- 24"x36", Pratt & Whitney\$550.
- 14" cap. Fox, Warner & S.....\$350.

MANUFACTURING MILLERS

- No. 4 Lincoln type, Hendey ea. \$125.
- No. 5 Lincoln type, Hendey ea. \$150.
- Type B Briggs, Gooley-E.....\$425.
- No. 8 Lincoln type, Hendey ea. \$225.
- 2—Very heavy type Duplex, table 20"x5', Hendey, ea.\$800.

VERTICAL MILLING MCHS.

- 5—No. 5 Becker & Brainard, ranging from ea.....\$150 to \$350.
- 4—No. 5B Becker & Brainard, ranging from ea.....\$200 to \$400.

Pratt & W. precision hoke blocks
Screw plate sets
Line shafting, pulleys and hangers
Lubricating pumps and tanks

OIL WASTE EXTRACTORS & OIL PURIFYING EQUIPMENT

- 1—36" chip extractor (New), Oil and Waste Saving Mche. Co.\$350.

POLISHING EQUIPMENT

- 2—No. 7 polishing jacks, Diamond, ea.\$30.

HOT TRIM PRESSES

- 3—Model 1 geared, Perkins.....\$375.
- 1—Very heavy bk. geared Waterbury-Farrell\$400.

PROFILING MACHINES

- 1—No. 12 Pratt & Whitney.....\$225.

AUTOMATIC SCREW MCHS.

- 1—34" single-spindle, Gridley\$600.
- 1—4" 4-spindle, Gridley.....\$500.
- 3—14" 4-spindle, Gridley, ea.\$600.
- 2—No. 55 14" 4-spindle including large assort. of cams, collets and feed fingers, National Acme, ea.\$750.

TESTING MACHINES

- 1—Dynamic crankshaft balancing machine, Akimoff Instrument Co. 350.

THREADING MACHINES

- 1—6-spindle spring clip, fitted with 6, 1" H. & G. die heads, Columbia Nut & Bolt Co.\$450.

MISCELLANEOUS

- 1—Automatic Pin Lapping Machine, motor dr., Bethel-Player Co.... 500.
- 1—Walker Demagnetizer.....50.

Many other Machine Tools too numerous to mention—Ask for catalog—Special prices on large orders.

Tanks and pumps
Root Blowers
Miscellaneous electrical equipment 220 volts D. C.

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This is only a partial list. Write for price on any tool you need, whether listed below or not.

Lathes

- 1-48"x50' Pond.
- 1-48"x24' Pond.
- 1-42"x50' Putnam Grd. Hd.
- 1-42"x50' American Grd. Hd.
- 1-36"x71' American Grd. Hd.
- 1-27"x14' Reed-Prentice Grd. Hd.
- 5-26"x16' Niles-Bement-Pond.
- 10-26"x16' Bridgeford.
- 5-26"x14' Niles-Bement-Pond.
- 5-26"x12' Bridgeford.
- 13-26"x11' Wickes.
- 10-26"x10' Niles-Bement-Pond.
- 21-26"x10' Canada.
- 15-26"x10' Whitcomb-Blaisdell.
- 14-26"x10' Bridgeford.
- 9-25"x12' LeBlond.
- 1-24"x18' L. & S. Sel. Grd. Hd.
- 1-24"x16' L. & S. Sel. Grd. Hd.
- 1-24"x20' Reed-Prentice, Grd. Hd.
- 9-24"x10' Cisco.
- 5-20"x22"x16' American.
- 1-20"x10' Hamilton, M. D.
- 30-20-22"x8' American.
- 1-18"x8' Greaves-Klusman.
- 1-18"x8' Lodge & Shipley.
- 1-16"x14' Reed-Prentice, G. H.
- 1-16"x12' Sundstrand Mfg.
- 1-16"x10' Sundstrand Mfg.
- 2-4"x60' Loswing.
- 5-34' Fitchburg Loswing.

Horizontal Boring Machines

- 1-No. 12 P. & H.
- 1-No. 0 Fostick.

- 1-4" Bar Gisholt.
- 3-No. 1 Barrett.
- 5-Rockford.

Auto. Screw Machines

- 7-No. 6-A Potter & Johnston.
- 2-No. 5-A Potter & Johnston.
- 2-34" Cleveland.
- 1-No. 56 National Acme.
- 1-1"x5" New Britain.

Turret Lathes

- 10-24" Steinkle; 2-24" Gisholt M
- 3-21" Gisholt.
- 3-20"x8' American.
- 1-No. 7 Foster, Geared Head.
- 7-2-spindle Jones & Lamson.
- 1-18" Acme.
- 3-16" Cincinnati-Acme-Fox.

Vertical Boring Mills

- 1-10' Niles.
- 1-72" Gisholt. 2-42" Gisholt.
- 1-60" Pittsburg.
- 1-48" Colburn.
- 1-42" Colburn.
- 1-42" Bullard, New Era.
- 1-36" Bullard, New Era.
- 1-36" Bullard, Rapid Production
- 1-36" Gisholt.
- 1-32" King.
- 1-30" Flather.

Radial Drills

- 1-4' Western Heavy.
- 1-5' Reed-Prentice. 1-4' Reed
- 1-4' Fostick.

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- 3' Western.
- 3' Gang Sensitive.
- 3' American Sensitive.

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- No. 3 6-spindle Foote-Burt.
- No. 17 4-spindle Foote-Burt.
- 2" Barnes, Self Oiling.
- 25" Superior.

Car Cutters and Hobbers

- No. 5 60" Brown & Sharpe.
- No. 13 Brown & Sharpe.
- No. 36 B M G. & E.
- No. 6 Fellows.
- 18" Gleason.

Milling Machines

- No. 4 Cincinnati, Hi-Power.
- No. 3 Kempsmith.
- No. 3 Brown & Sharpe.
- No. 0 Brown & Sharpe.
- No. 0 Rockford.
- No. 25 Becker.
- No. 1 Kempsmith.
- No. 2 Y Brown & Sharpe.
- No. 2 Hendey Universal.
- No. 2 Kempsmith Universal.
- No. 14 Garvin Duplex.
- No. 1 Van Norman, Hand.
- Type B Briggs.

Vertical Millers

- Model ACS 2-spindle Becker.
- Model SD Becker.
- No. 6 Becker.
- No. 5-B Becker.
- No. 4 Cincinnati.
- No. 3-B Milwaukee.

- 1—No. 2-B Milwaukee.
- 1—No. 4-B Becker.
- 2—No. 3 Cincinnati.
- 1—Model CS Becker.

Planers

- 1—72"x84"x12' Gray.
- 1—42"x42"x 9' Niles - Bement - Pond.
- 1—42"x36"x14' Cincinnati.
- 3—36"x36"x18' Cincinnati.
- 1—36"x36"x16' Rockford.
- 2—36"x36"x8' Ohio.
- 1—36"x30"x20' Whitcomb-Blaisdell.
- 1—30"x30"x 8' Niles - Bement - Pond.
- 1—30"x30"x8' Gray.
- 1—30"x30"x 8' Liberty.
- 2—24"x24"x6' Gray.

Grinders

- 1—26—37½"x96" Norton Gap.
- 1—24"x96" Norton.
- 1—18"x96" Norton.
- 2—16"x50" Norton.
- 2—14"x72" Norton.
- 4—14"x50" Norton.
- 1—12"x120" Landis.
- 1—10"x120" Norton.
- 1—10"x72" Norton.
- 1—10"x52" Landis.
- 6—10"x50" Norton.
- 1—No. 14, 10"x30" B. & S.
- 5—10"x36" Norton.
- 1—10"x24" Norton.
- 9—6"x32" Norton.
- 1—6"x18" Landis.
- 1—12"x36" Cincinnati Universal.
- 1—No. 2 Landis Universal.
- 1—No. 2½ Universal.
- 1—No. 60 Heald. 1—No. 70 Heald

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MACHINES OF THIS TYPE ARE HARD TO FIND

- 24" Bullard Vertical Turret Lathe, New Era Type
- 42" Bullard Vertical Turret Lathe, New Era Type
- 3A Warner & Swasey Turret Lathe.
- 48" Colburn Vertical Boring Mill, one plain head
one turret head, arranged for A. C. motor drive
- 52" Niles Boring Mill, 2 swivel heads.
- 60" Brown & Sharpe Spur Gear Cutter.
- 24"x18" American Geared Head Lathe, A. C.
motor drive, motor included.
- 36"x28" Lodge & Shipley Grd. Hd. Lathe, t.
- 48"x48"x12" Cleveland Open Side Planer, 2 re-
heads, 1 side head.
- 6"x32" Norton Plain Grinder.
- 10"x50" Norton Plain Grinder.
- No. 14 Brown & Sharpe Plain Grinder.
- 14" Pratt & Whitney Vertical Surface Grinder.
- No 4, 16"x72" Cincinnati Universal Grinder.
- 6" American Triple Purpose Radial, close
head type, A. C. motor drive.
- No. 2 Baker Keyseater.
- No. 3 Cincinnati Plain High Power Milling Ma-
chine, single pulley.
- 2 1/4" Acme Bolt Cutter.

THE NOTCH & MERRYWEATHER MACHINERY CO. to

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one turret head, arranged for A. C. motor drive
- 52" Niles Boring Mill, 2 swivel heads.
- 60" Brown & Sharpe Spur Gear Cutter.
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motor drive, motor included.
- 36"x28" Lodge & Shipley Grd. Hd. Lathe, t.
- 48"x48"x12" Cleveland Open Side Planer, 2 re
heads, 1 side head.
- 6"x32" Norton Plain Grinder.
- 10"x50" Norton Plain Grinder.
- No. 14 Brown & Sharpe Plain Grinder.
- 14" Pratt & Whitney Vertical Surface Grinde
- No. 4, 16"x12" Cincinnati Universal Grinder.
- 6" American Triple Purpose Radial, close
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20"x8" Monarch, Q. C. G.
18"x8" American, Q. C. G.
18"x14" Draper.
18"x8" Prentiss, Q. C. G.
16"x8" Monarch, Q. C. G.
16"x8" Hendey, Q. C. G., Taper and
Back-Off Attachment.
16"x6" Walcott, S. Q. C.
14"x6" Von Wyck.
14"x6" Illinois, with Turret.
14"x6" Coddard.
10"x5" Seneca Falls.

SHAPERS

30" Cincinnati, Triple Geared.
22" Walcott.
21" American, Back Geared.
20" Gould & Eberhardt, Back Geared.
20" Kelly.
16" Juengst.
15" Potter & Johnston, Universal.

PUNCH PRESSES

No. 3 R. & K. Straight.
No. 3 Siles O. B. I.
No. 0 V. & O. Punch Press.
No. 2 American Can Kick Press.
No. 2 Walsh Kick Press.
No. 1 American Can Kick Press.

MILLING MCHES.

No. 5 Becker Vertical.
No. 2 Owen Universal.
No. 2 American Plain.
No. 1 1/2 Brown & Sharpe Plain.
No. 1 1/2 American Plain.

GRINDERS

2—No. 11 Brown & Sharpe Plain.
No. 12 Modern Tool Grinder, Plain.
No. 2 Brown & Sharpe Surface,
Plain with Magnetic Chuck.
No. 2 Brown & Sharpe Cutter Grinder.
No. 1 Gardner Disc and Surface.
No. 1 Marvel, SKF Ball Bearing.
No. 2 Marvel, SKF Ball Bearing.

DRILL PRESSES

26" Superior Geared.
24" Fostick Radial Drill.
22 1/2" Sibley All Geared.
20" Buffalo Back Geared.
16" Henry & Wright, H. S. B. B.
16" Henry & Wright, H. S. B. B.
14" Henry & Wright, H. S. B. B.
Motor Driven.
14" U. S. Drill.
14" Esley.
12" Sterling-Elliott.

MISCELLANEOUS

Southwark Punch & Shear, 36" Throat, Arranged for Motor Drive.
Hillis & Jones, Horizontal Punch, Capacity 1 1/4" through 1 3/4".
No. 440 American Single Surfacers, D. C. 15 H. P., A. C. Motor.
No. 60 Heald Cylinder Grinder, Full Automatic Feeds.

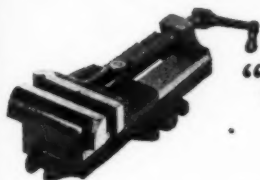
6" Beloit Punch & Shear.
No. 5 Root Vertical Blower.
Springfield Straightening Press.
1/2 Bushel Oil Separator.
Burke Cold Saw.
No. 1 Marvel Hack Saw.
No. 2 Marvel Hack Saw.

20 Ton Weaver Screw Press.
7 1/2"x6" C. P. T. Air Compressor.
3/4" St. Louis Tapper.
1 1/2" Cap. Putnam Bolt Cutter.
2 Ton Peerless Chain Hoist.
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For Use on Miller, Shaper, Planer or Drill

Repeat orders are showing that this Vise has proved its worth a hundred times over.

No well equipped shop is complete without this modern Vise. Opens 6 inches, weighs 37 pounds.

Price Only \$18.00

4-Sp. 16" H. S., B. B. Demco Drill Press; power feed on each spindle, nearly new. A bargain at.....	\$ 800.
No. 6 Fellows Gear Shaper, in extra fine cond.....	850.
6x48 Brown & Sharpe Gear Cutter; fine condition....	1250.
25" Brown & Sharpe Spur Gear Cutter; very good cond.	550.
No. 3 Adams-Farwell Gear Hobber, like new, used less than 8 months	1075.
No. 4 LaPointe Broach; good condition.....	650.
10" Niles Slotter; circular table, good condition.....	875.
22" Walcott Shaper; fine condition.....	575.
18" Cincinnati Auto. Miller, equal to new	675.
30" Bullard Vert. Boring Mill; excellent condition....	750.
Waterbury-Farrell triple geared, straight side Press; 6" shaft; 250 ton; good condition.....	1000.
16" Reed-Prentice B. B. Vert. Surf. Grinder, like new	1750.
20x12' Hendey Lathe, equal to new.....	1250.
20x10' late type Boye & Emmes Lathe; double apron double back gears; taper attachment; like new..	1000.

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Surplus Plant Equipment

Many Modern Machines. Some practically as good as new.
All Motor Driven Equipment 220 volt D. C.

Communicate with our nearest office for prices.

All items at Ridgway, Pa., except those marked
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13"x5' Blount Speed Lathe, Belt.
H-27"x12' Pond Time Saver, arr.
for d. c. var. speed motor.

Turret Lathes

3"x36" P. & W., belt.

Planers

42"x42"x26' Pond, 4 hds. rev. m. d.
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48"x48"x27' Pond, 4 hds. rev. m. d.
H-36"x36"x10' Pond, 3 hds., r. m. d.
H-36"x36"x12' Pond, 4 hds., r. m. d.
H-42"x42"x14' Pond, 4 heads, belt-
ed, m. d.
H-42"x18"x20' Pond, Extra Heavy
Frog and Switch, 2 heads, r. m. d.

Upright and Radial Drills

No. 1 Bement Vert. Coter, Belt.
5' Right Line Full Universal motor.
H-P. & W. No. 13 Adjustable 16-
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H-No. 1 14" Barr 1-sp. Sens., Belt.
H-16" LeBlond 1-sp. Sens., Belt.
H-20" Aurora W. & L. Feed, Belt.

Millers

Whitney Hand, belt.
6"x132" P. & W. Thrd. Miller, Belt.

Woodworking Equipment

20"x12' Clement Lathe, Belt.
24"x12' Clement Lathe, Belt.

Gear Cutters

24" Gleason Bevel Planer, belt.
36" No. 4 B. & S. Spur Cutter, belt.

Emery Wheel Stands

No. 6 Blount Grinder, Belt.
18" Grinder and Polisher, belt.
30" Grindstone Frame, belt.

Grinders—Cylindrical and Tool

LeBlond No. 1 Cutter, belt.
No. 2 Sellers Tool, belt.

Horizontal and Vertical Boring Mills

34" Sp. Ridgway Hor., motor.
5" Sp. Betts Horiz., belt.
54" Sp. 80" Bement Horiz., belt.
H-44" Niles, with r. h. tur. hd., mtr.

Niles Electric Traveling Cranes

5 ton, 3 motor, 34' 8" span.
5-ton, 3-motor, 35' 7" span.
10-ton, 3-motor, 34' 8" span.
30-ton, 4-motor, 34' 8" span, 5-ton aux.
25-ton, 4-mtr., 71' 11" span, 5-ton aux.
40-ton, 4-mtr., 71' 11" span, 5-ton aux.
2-ton, 2-motor, wall crane, 19' arm.

Miscellaneous

Y & T 3-ton Hand Crane, 35' 6" span
4" capacity Espen-Lucas Cold Saw
Williamsport No. 190 Ry. Cut-Off
Saw Belt.
100—Card Dey Time Regis. Clocks.
H-1"x1" Cap. 12" Throat, L. & A.
Hor. Punch Motor.
H-185-lb. Motor Driven Air Ham.

Also Foundry and Woodworking Equipment

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SPECIAL LIST

Iron and Sheet Metal Working Machines

Presses

- No. 56 Toledo S. S. B. G. 4" Stroke, Wt. 14000 lbs.
- No. 57-Toledo S. S. B. G. 8" Stroke Wt. 18000 lbs.
- No. 1 Walsh O. B. I., wt. 900 lbs., stroke 1½"
- 2-No. 21 Bliss O. B. I., wt. 3800 lb. each, stroke 2½"
- No. 2 Robinson Plain S. S. Press, wt. 3500 lbs., 2" stroke.
- No. 3 Bliss Stiff Back Press, wt. 3000 lbs., stroke 1½"
- No. 15 Waterbury Pl. S. S. 24" bet. Housing 5" Stroke Wt. 6000 lbs.
- 4-Plain Fly Wheel Presses, wt. 2000 lbs. each, 1½" stroke.
- No. 63A Waterbury Farrell S. S. B. G. 6" and 8" Stroke 21" Bet. Housing Wt. 9000 lbs.

Punches

- No. 4 Long & Allstatter Single End Back Geared, capacity ¼" thru ½"
- No. 6 Whiting Single End, Back Geared, capacity ¼" thru ½"
- 1-Bertsch Rapid Production Punch 18" throat, archt. jaw, wt. 3500 lbs.

Press Brake

- 1-10' Streine (POORMAN type) Power Press Brake, 3/16" capacity, arranged for mtr. dr., wt. 40000 lbs.

Shapers

- 24" G. & E. Back Geared Crank.
- 24" Kelley Back Geared Crank.
- 16" Smith & Mills Back Geared Cr.
- 16" Smith & Mills Plain Crank.
- 16" Steptoe Plain Crank.
- 16" Ohio Plain Crank.
- 12" Steptoe Plain Crank.

Bolt Cutters

- 1" Landis single head (with dies).
- 2" Acme Model B. (without dies).

Millers

- No. 1 Kempsmith Universal.
- No. 1½ Cincinnati Universal.
- No. 2 B. & S. Universal.
- No. 3 B. & S. Plain, Motor Drive.
- No. 3-B. & S. Plain, Motor Dr.
- No. 4 Becker Brainard Plain.
- No. 4 Cincinnati Plain.
- No. 2 Becker Vertical.

Square Shears

- 2-24" Foot Power Square Shears.
- 3-30" Foot Power Square Shears.
- 1-Whitcomb Power Slitting Shears.
- 1-8' Power Square Shear, cap 20 ga.
- 1-8' Excelsior Power Square Shear, overhead drive, 15" gap and 16 ga.
- 1-10' Bertsch Power Square Shear, overhead drive, 14 gauge capacity.
- 12' Streine Power Square Shear, under-drive type, 18 gauge cap.

Welders (Spot and Arc)

- 140 ampere Detroit Spot Welder, 18" arm for 110 volt, 60 cycle.....\$220.
- Can furnish 220 v. transformer 35.
- 7½ k. w. Taylor-Winfield Spot Welder 12" arms, 60 cycle, 220 volt....\$245.
- 5 k. w. Toledo 220 volt, 60 cycle, Spot Welder 12" arms.....\$210.
- 3-10 k.w. Thompson Spot Welders, 60 cy., 220 v., 18" arms, each \$325.
- 1-Zues Portable Arc Welder...\$145.
- 1-General Electric 200 amp. 220 v., 3 ph., 60 cy., motor generator set, \$475.

Hack Saws

- 6x6 Racine High Speed S. P. Drive.
- 8x8 Racine High Speed S. P. Drive.
- 7x7 Atkins Quick Cut S. P. Drive.
- 12x15 Racine High Speed with 3 speed transmission drive.
- 13x15 Racine High Speed with 3 speed transmission drive.

We are in the market to purchase first class machinery: What have you for sale?

The Jones Machine Tool Co.
Front & Pike Sts., Cincinnati, Ohio

A MESSAGE TO OUR FRIENDS

The past year with its many new customers has shown a gratifying increase in our business, and now as we pass another mile post, another year is confronting us with its hopes and opportunities to serve you. We come to you prepared, carrying an enormous stock of guaranteed tool room machinery. We assure you that our company is a source of supply on which you can depend as our many customers will testify.

We Offer

LATHES

- 20"x10' Boye & Emmes q. c. g.
- 15"x8' Hendey q. c. g., t. a.
- 14"x6' Lodge & Shipley grd. hd.
- 14"x6' Rockford q. c. g.
- 10"x4' Shepard q. c. g., new.
- 7"x3' Flather, brand new.

GRINDERS

- No. 1 W. & M. univ. tool & cut.
- No. 2 Oesterlein univ. tool & cut.
- No. 1 W. & M. surface, b. b.
- No. 5 Landis internal cylinder.

DRILL PRESSES

- 4' Ryerson radial, s. p. d.
- 4-spd. Henry & W. Hi-Speed.
- No. 0 Avey Hi-Speed, b. b.
- No. 1 Mason Hi-Speed, b. b.
- No. 1 Avey Hi-Spd. floor type.
- No. 1 Avey Hi-Speed bench.
- 21" Champion b. g., p. f., new.
- 21" Canedy-Otto b. g., new.
- 20" Hoefler b. g., power feed.
- 14" Canedy-Otto direct m. d.

MILLERS

- No. 3 Cincinnati univ., v. head.
- No. 1½ Brown & S. univ., v. h.
- No. 1 Cincinnati univ., complete.
- No. 3 B. & S. plain, div. hd.
- No. 2½ LeBlond plain, complete.
- No. 2 LeBlond plain, b. g.
- No. 2 Oesterlein plain, s-c. dr.
- No. 1 Rockford plain, complete.
- No. 3 Rockford hand, p. f. to tbl.
- No. 3½ Fox hand, p. f. like new.

SHAPERS

- 16" American s. p. d., univ. tbl.
- 16" Gould & Eberhardt b. g.
- 16" Cincinnati b. g. swivel table.
- 16" Cincinnati b. g.
- 16" Lodge & Davis friction type.
- 20" Smith & Mills d. b. g.
- 20" Walcott b. g., p. f. to head.
- 7" Rhodes complete.

SCREW MACHINES

- No. 2 Wood Turret Lathe, new.
- No. 3 Foster pl. head, complete.
- No. 7 Foster friction geared head.

Also a Large Unlisted Stock

"Tool Room Machinery Our Specialty"

Central States Machinery Co.

134 South Clinton Street

CHICAGO

High Grade Machine Tools

Lathes

44"x40" Pond, cone drive, L. C.
 42"x20" L. & S., Q. C. D. C. M. D.
 24"x22" American Geared Head.
 60"x18" New Haven.
 36"x16" Fay & Scott, L. C.
 25"x10" LeBlond, Q. C. late type.
 24"x12" LeBlond Lathe.
 21"x10" LeBlond, Q. C. late type.
 24"x10" Schumacher, Boye & Emmes,
 3 S. C. Q. C.
 20"x8" Hendey, yoke head, t. a.
 18"x8" American, Q. C. Cone drive.
 18"x 8" Rahn-Larmon Q. C. late type.
 14"x 6" Hendey, Yoke Head.

Radial and Upright Drills

4" Bickford, Gear Box, S. P. D.
 5" American, T. G. G. B. D.
 5" Cincinnati Bickford Full Universal,
 G. B. D.
 6" Drees Gear Box Drive.
 26" Cincinnati Upright, C. D.
 26" Rockford Upright, C. D.
 25" Barnes Upright, C. D.
 25" Superior Upright, C. D.
 21" Canedy-Otto, B. G. P. F.

Gear Cutters

36-H G. & E. Gear Hobber.
 36" Whiton Bevel & Spur Gr. Cutter.
 18" Schuchardt & Schutte Hobbers.
 6" Gleason Generator.

Boring Mills

No. 1 Rockford, 2" bar.
 30" Colburn, Vertical.
 24" Bullard Rapid Prod., latest type.
 42" Gisholt, two heads, late type.
 51" Bullard Vertical, 2 heads.

Milling Machines

No. 4 Brown & Sharpe Universal.
 No. 3 Cincinnati, Plain, Cone.
 No. 3 LeBlond Heavy, Cone.
 No. 3 1/2 Fox Hand and Power.
 No. 2 Kempnith Plain, cone drive.
 No. 1 1/2 Valley City.
 No. 1 Kempnith, Universal.

Grinders

No. 60 Heald, \$275.00 each.
 12"x72" Cincinnati, 95% new
 10"x20" Landis.
 10"x36" Landis, self contained.
 No. 3 Brown & Sharpe Universal.
 12" Pratt & Whitney Vert. Surface.
 14" Pratt & Whitney Vert. Surface.
 No. 1 LeBlond Tool Grinder.
 Modern Chaser Grinder.
 Yankee Drill and Tool Grinder.

Shapers

15" Springfield, cone drive.
 16" Barker.
 20" Barker, cone, B. G.
 20" Hendy.
 20" Cincinnati, cone, B. G.
 20" Smith & Mills, cone, B. G.
 24" Barker, cone, R. G.
 24" Cincinnati, B. G. cone.
 28" Queen City, S. P. D.

Planers

12"x12"x24" Hendey Bench Planer.
 24"x24"x12" Chandler, 2 heads.
 26"x26"x12" Blaisdell, 2 heads.
 32"x32"x16" American, 2 heads.
 48"x48"x16" D. & H. Opens, 2 hds.

Miscellaneous

1" National Bolt Cutter, complete.
 1 1/2" Acme double spindle Stay Bolt
 Cutter, with Landis Heads.
 No. 3 Woods Tilted Turret.
 No. 195 American Can Punch Press.
 No. 4 McDonald Punch Press.
 No. 2 Kane & Roach Multiple P. & S.
 100 lb. Little Giant Hammer.
 50 lb. Little Giant Hammer.
 Whiting Punch & Shear, No. 8, 36"
 throat, 1 1/4"x1 1/4".
 Wickes Punch & Shear, 48" throat,
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 No. 1 Badger State Alligator Shear.
 10" Bertsch Power Squaring Shear,
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- 2—Carlton Sen. Motorized 36".

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- 1—Foote-Burt No. 3—6-spindle.
- 2—Gardam mult. 10 and 34-spdl.
- 1—Barnes 4-spindle.

Gear Shapers

- 8—Fellows No. 6 and 36".

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- 12—Herald Internal Nos. 60-65-75.
- 11—Norton Plain External 6x32, 10x50, 10x72, 14x72.
- 1—Landis No. 3 Universal.

Lathes—Engine—Miscellaneous

- 3—American 14x6, B. G., Q. C.
- 3—Carroll & J. 14x6, B. G., Q. C.
- 4—Chard 24x11 B. G., Q. C.
- 4—Fitchburg Lo-Swing 3½x60".
- 6—Greaves & Kluman 18x6, 18x8, 30x8 B. G., Q. C.
- 5—LeBlond 17x12, 21x10, 21x12, B. G., Q. C. Mfg.

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- 1—South Bend 16x6, Loose Change Gears.

Turret Lathes and Screw Mchs.

- 3—Acme 2¼x11—26".
- 7—Bardons & Oliver No. 4.
- 2—Dreses 20".
- 1—Warner & Swasey 18".
- 1—Warner & Swasey No. 2.
- 2—Warner & Swasey No. 6.

Milling Machines—Horizontal

- 1—U. S. Hand.
- 1—Bilton No. 25.
- 3—Pratt & W. Nos. 6-10 Hand.
- 1—Brown & S. 2B Cone Type.

Punch Presses

- 2—Toledo No. 1 Inclinable.
- 1—Consolidated No. 3 Inclinable.
- 1—Maxim No. 124 Inclinable.

Screw Machines—Automatic

- 1—Cleveland 2" Single Spindle.
- 2—Gridley 1¼" Single Spindle.
- 2—Gridley ¾" Multiple Spindle.

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- 1—Lodge & Davis 16".
- 2—Stephens 16".

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- 1—Baush 42" vertical, 2-heads.
- 1—Niles 42" vertical, 2-heads.
- 2—Betts 10' vertical, 2-heads.
- 1—Pond 10-24" vertical.
- 1—N-B-P 10-16" vertical, 2 heads.
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- 1—Cleveland 2 1/2" bar, horizontal.
- 1—Rockford No. 2 horizontal.

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- 5—Detroit 5-spindle.
- 4—Natco Nos. 11, 12, 13.
- 7—P. & W. Nos. 12, 13.

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- 1—Baush 6' radial.
- 1—Cincinnati 6' univ. radial.
- 1—Dreses 5' plain radial.
- 1—American 4' plain radial.
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- 2—B. & S. No. 6, 60" cap.
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- 3—Fellows Nos. 61.
- 4—Gleason 6", 11", 18".
- 1—Gleason 24" bevel gear planer.
- 1—Lees-Bradner No. 5-A.
- 3—Fellows Gear Grinders.
- 10—Cross gear tooth rounders.

GRINDERS

- 5—B. & S. Nos. 10, 11, 12, 13, 14.
- 4—Cincinnati No. 2, 12x36, plain.
- 9—Landis 6x18, 10x24, 10x36, 12x36, 12x96 plain.
- 5—Norton 3x18, 6x32, 10x24, 10x36, 10x50, plain.
- 1—Queen City 16x72 plain.
- 3—Landis 10x52 cam; 16x48 crank.
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- 3—Thompson univ.
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- 1—Diamond No. 2 surface.
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- 7—Van Norman No. 34.

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- 1—New Bradley 30 lb. helve.
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- 1—Sundstrand 9x12 mfg.
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- 1—Hendey 14"x6" tie bar head.
- 4—LeBlond 14"x6" grd. hd.
- 2—P. & W. 14"x6"; 14"x8".
- 5—South Bend 15"x5".
- 5—L. & S. 16"x6"; 16"x8".
- 1—Boye & Emmes 18"x8".
- 1—Fay & Scott 20-42", gap.
- 1—Walcott 26"x10" d. b. g.
- 2—Bridgeford 26x12", q. c. g.
- 1—Greaves-Klusman 26x12".
- 1—Whitcomb-Blaisdell 26"x12".
- 3—LeBlond 26"x10" duplex crank.
- 1—Johnson 30"x12"; m. d.
- 1—Hendey 24"x12".
- 1—Bridgeford 32"x26"; pat. grd.
- 1—Bridgeford 42"x38"; grd. hd.
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- 6—Foster Nos. 2, 4, 6.
- 4—Greenlee 2 1/2x28.
- 16—J. & L. 2 1/2x24, 3x36.
- 1—Libby 26", 4 1/2" hole.
- 3—W. & S. Nos. 4 and 6.
- 2—W. & S. No. 2-A.

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- 2—B. & S. Nos. 0, 00 cut-off.
- 14—Cleveland 1", 1 1/2", 2", 4", "A".
- 4—Cleveland 1", 1 1/2", 2", 4", "B".
- 11—Gridley 9/16", 1", 1 1/2", 1 3/4", 2", 4-spindle.

- 10—Gridley 3 1/2", 4 1/2" single.

- 6—New Britain Nos. 23, 24, 34, 53.
- 4—National A. Nos. 52, 54, 56, 515.
- 11—P. & J. No. 5-A, No. 6-A.

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- 6—B. & S. Nos. 2, 2B, 3, 4, plain.
- 6—Cincinnati Nos. 3, 4 plain.
- 2—Garvin No. 13 1/2 plain.
- 1—Hendey Norton No. 3 plain.
- 2—Garvin No. 1 1/2 univ.
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- 1—Henry & W. with No. 3 taper.

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- 2—6x32 Norton plain.
- 1—10x36 Landis plain.

- 1—12x36 Queen City plain.
- 2—6x15 Fitchburg plain.
- 3—No. 65 Heald cylinder.
- 1—No. 22 Heald rotary.
- 1—No. 14 P. & W. vertical.
- 1—Reed Prentiss vertical.
- 1—No. 6 Gardner disc.
- 3—No. 4 Gardner disc.
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B-2170—No. 1 Knight Drilling and Milling Machine.

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- B-2093—No. 26 Brown & Sharpe self-contained plain cylindrical.
B-1801—Norton Plain Cylindrical, swing 12"x50".
B-845 —Modern 12"x48" Plain Cylindrical.
B-2583—No. 14 Brown & Sharpe Plain.
B-2584—No. 14 Brown & Sharpe Plain.
B-2234—No. 3 Brown & Sharpe Surface.
B-2255—LeBlond Universal Tool and Cutter Grinder.
B-2423—Cincinnati Cutter Grinder.
B-2092—Gardner No. 4 Plain Bearing Double End Disc Grinder.
B-1960—No. 8 Besly Plain Bearing Disc Grinder.
B-1275—Wm. Sellers & Co. Drill Grinder, Serial 2668.
B-1923—Wilmarth & Marmon "Yankee" Single End Drill Grinder.
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 Miller, Kemp Smith No. 2 Plain.
 Miller, Cincinnati No. 4 Plain.
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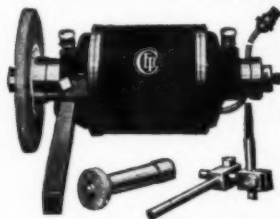
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10 Plants Wanted

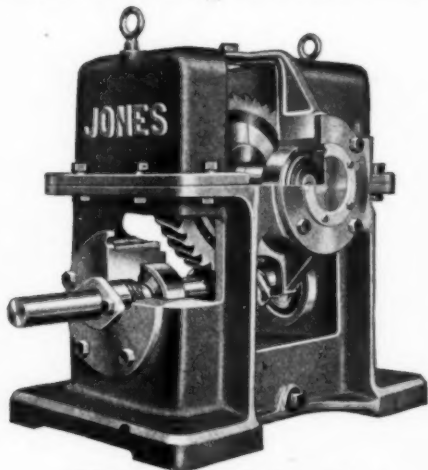
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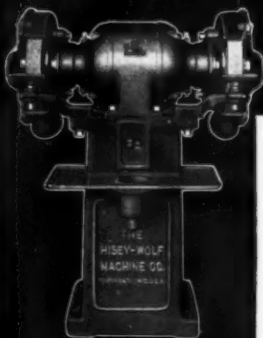
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